ABSTRACT OF

The Morison Lectures

ON

THE RELATION OF THE NERVOUS SYSTEM TO DISEASE AND DISORDER IN THE VISCERA.

Delivered before the Royal College of Physicians of Edinburgh on Nov. 7th, 9th, and 11th, 1898,

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LECTURE III.[1]

Delivered on Nov. 11th.

DISORDERS OF VISCERAL MOTION.

SIR JOHN TUKE AND FELLOWS,—The separation of sensation from motion is relatively to the mind a distinction in what may be termed objective consciousness. We feel pain and can localise it and we can observe movement. The separation of sensibility from motility is a finer distinction and is largely in what we may term subjective consciousness or reasoning. Essentially the transmutation of one form of motion into another merely emphasises the common property by which a living universe is conditioned. Clinically the distinction is convenient and no circumstance reveals more instructively the relation of the nervous system to visceral motion than the influence one organ has upon another. The displaced or twisted kidney which induces a tachycardia, the diminished thyroid secretion which causes a cardiac stagger or a bradycardia, the retained excretion or the peripheral excitation which induces a convulsion, or the functional inactivity generally which disturbs metabolism,—all show how intimately one form of motion is related to another; and when we emphasise motility in a given clinical condition we might rationally regard it in some instances as the motor feature of an essentially sensory and causal disorder. In touching upon some points illustrative of the relation of the nervous system to viscero-motor disease and disorder I shall follow the plan already adopted in discussing sensory disorders and take as the type of disordered visceral motion abnormalities in the action of the heart, making reference incidentally to analogous conditions in other organs.

The motor innervation of the heart we know is accelerant and augmentor-motor, inhibitory and depressor-motor, and trophic or pneumogastric proper, all these movements having necessarily their sensory concomitants or equivalents. Gaskell and his successors, anatomical and physiological, have revolutionised, as we learned last year, our conceptions of the visceral nervous outflow in general, including the innervation of the heart. For whereas we formerly regarded the pneumogastric as a primary and the cervical sympathetic as a secondary source of cardio-motor innervation, we now believe that the pneumogastric is a secondary and the cervical sympathetic a tertiary source of such innervation. Whether all the supra-thoracic vaso-motor outflow originates as low down as the second dorsal spinal nerve appears still to be somewhat doubtful. Hill and Bayliss[2] failed to evoke vaso-motor action in the intracranial circulation by electrical stimulation from this region. Without the aid of experimental physiology and merely using the microscope for anatomical research I have met with conditions bearing on this point which will be seen on the table and are reproduced on the screen. It will be seen that what appear to be the sources both of the pia matral and pia vascular innervation are certain tassel-shaped bodies which are arranged centripetally to the vessels and of which I give a short account this month (November) in the *Edinburgh Medical Journal*. The precise locality of these vessels I have not yet had an opportunity of determining, but they appear to me to be sufficiently characteristic in design to be capable of identification by injected specimens. Thus identified, the position of the bodies in question, whether they be the source of vaso-motor nerves or no, should also be determinable.[3] In the meantime we may assume, notwithstanding Hill's and Bayliss's failure to elicit response, that the outflow of the indubitably existent vaso-motor nerves in the pia mater is from the same region as the general vaso-motor outflow, that is, below the level of the first dorsal nerve, and thus bring the vaso-motor phenomena of all the viscera including the brain, into line.

Cardiac motion, like secretory and other motion, may be average or normal and plus or minus. A mid-point or equilibrium is a balance of extremes and vital equilibrium is maintained by a certain variation around a centre of equipoise. Acceleration and retardation, augmentation and depression, constantly correct one another with the sensitiveness of a species of tentacula to surrounding circumstances, these tentacles being the nerves and the properties with which they are endowed. This is well exemplified by the influence of respiration on the character and rate of the radial pulsation. (Fig. 1.) The sphygmogram I throw on

FIG. 1.

a, Pulse during quiet respiration. *b*, Pulse during forced respiration.

the screen shows the small waves of forced inspiration on the ascending portion of the curve, followed by the large waves of prolonged expiration on the descending portion. These are no more the evidences of a mere pneumatic suction and propulsion than the cerebral circulation is the passive arterio-venous balance which Monro and his disciples conceived it to be. The pneumatic conditions play a part in the one as the comparative resistance to atmospheric pressure does in the other, but the character and rate of the waves in the two portions of the curve indicate a vaso-motor regulation, the peripheral incentive to which is, I believe, to be found in the increased pressure in the dextral chambers of the heart and pulmonary circuit during inspiration. For comparison with the tracing of forced respiration I show one of the pulse of the same subject taken at the same time during quiet breathing in which the pneumatic factor is conspicuous by its absence, although in a minor degree doubtless still operative. (Fig. 1*a*.)

The antagonistic action of the accelerant and retardant nerves of the heart has been disputed. Retardation can be induced when artificial acceleration is in progress. It is none the less true that the safety of an abnormally inhibited heart consists in some acceleration of cardiac pulsation and, as was mentioned last year, in the sphere of secretory motion there appears to be a certain compensatory independence in the secretory influence of the cranial and sympathetic nerves of the submaxillary gland. It is probable that the same rule applies to other forms of vital motion. Dr. William Hunter,[4] referring to the fact that intense and even fatal jaundice may rapidly follow emotional shock, accounts for the phenomenon by suggesting a spasm or reversed peristalsis of the bile-ducts while the bile is in full flood as the probable cause. He admits, however (p. 81), that diminished quantity and increased viscidity of bile may be a cause of its absorption. The viscidity he attributes to catarrh of the bile-ducts. Can a more directly neurotic hypothesis be advanced?

The main secretory nerve of the liver is the pneumogastric and its sympathetic endowment is from the splanchnic nerve, while vaso-motor nerves for the portal vein are derived (according to Bayliss and Starling, quoted by Haliburton[5]) from nerves ranging from the third to the

[1] Lectures I. and II. were published in THE LANCET of Dec. 17th and 24th, 1898, respectively.

[2] Journal of Physiology, 1895.

[3] The neural nature of these structures has been disputed by a good microscopist, but I believe I am correct in maintaining the view I have expressed.

[4] Allbutt's System of Medicine, vol. iv., p. 68, et seq.

[5] Op. cit., p. 670.

eleventh dorsal. It appears possible, therefore, that the sequence of events may be somewhat as follows: in sudden, severe, and mental cases shock is followed by pneumogastric inhibition and arrest of its secretory-motor function. This entails an attempt on the part of the sympathetic to come to the rescue which it does by producing a more potent but also a more viscid bile, the nature of such potency not being at present to the point, which, like a blundering but well-meaning friend, stands in the way just when the pneumogastric having recovered from its inhibition throws out by augmented activity too large an amount of bile for rapid escape, hence absorption and rapid toxæmia in some cases and slow poisoning in others. I do not for a moment presume to indicate this solution as correct, but it appears to me to be as probable as other theories suggested and brings the motor activities of the liver into line with those of the heart, which is my present purpose. Again, the striking phenomena on the one hand of Graves's disease, which I prefer on this occasion to call Begbie's disease, and on the other of myxœdema appear to suggest a parallel on similar lines. The thyroid gland is innervated by the pneumogastric and by visceral nerves which reach it by way of the inferior and middle ganglia of the cervical sympathetic. Of these its most active secretory nerve is probably the pneumogastric, although I am not aware that the fact has been experimentally proved. If we regard Begbie's disease as in the first instance a cardio-vascular neurosis, to employ a term expressive of our ignorance, we can conceive an increased though ineffectual effort upon the part of the pneumogastric system—that is, of motor fibres probably derived from the spinal accessory nerve and coursing in the pneumogastric—to restrain the cardio-vascular organs in excessive visceral motion, and although unsuccessful in that effort so stimulated by it as to provoke increased activity in its own secretory motor fibres. This would result in an excessive secretion among others of the thyroid juice, the effect of which upon the circulation is to accelerate it. Thus the increased activity of that gland may add fuel to the fire which burns so lustily as vaso-motor commotion in the circumstances in question. This secretory increase, as we know, is at present regarded as one of the most probable causes of excessive pulsation in Begbie's disease, the etiology of which, however, is not yet by any means clear. It is conceivable, moreover, that a period of persistent hypersecretion may result in one of hyposecretion, the retardant influence of which may be slow in showing itself for the following reason: the sympathetic system, besides its general vaso-motor over-action, may also induce a supplementary sympathetic juice as in the case of the submaxillary gland and thus maintain for a time the waning accelerant influence of pneumogastric secretion. We know, however, that ultimately in a large number of cases the excessive excitement of the cardio-vascular system subsides more or less, that in some cases bradycardia succeeds tachycardia and that in yet others myxœdema takes the place of Begbie's disease. The neuro-motor activity of the gland, in short, and its associated organs is worn out and we may expect some day to have demonstrable pathological changes in the controlling centres which together with peripheral degeneration would account satisfactorily for the striking complex of symptoms. Action and supplementary action, endeavour and support, over-action and reaction, error and correction, seem to be general laws of life, and there does not seem to be any just reason why they should not apply also to the life manifest in visceral motion in its various form.

To study the matter a little more closely, and taking cardiac action as the type, let us examine the motor effects of shock upon the heart, and in the first instance of the shock of physical pain, with which Laycock's "phrenalgia" must necessarily be associated and often is in a high degree. As has already been remarked in a previous section, pain or excessive sensibility in any organ may influence the heart's action in association with various degrees of concomitant mental emotion proportionate to the amount of the stimulus. The tachycardia associated with displaced kidney may be present without much associated pain and therefore without great mental distress. With more pain the same conditions will be emphasised. The reflex effects of nephroptosis may affect many organs besides the heart and the severity of these secondary motor disturbances is not proportionate, as MacAlister has stated, to the amount of mere displacement.[6] Calculi, we have seen, may induce an extreme of agony which may terminate in collapse and death, the associated cardio-vascular phenomena being those of rapid and enfeebled action of the heart and a general vaso-paresis accompanied by profuse perspiration and depression of temperature. These extreme phenomena differ from those associated with angina pectoris chiefly in the situation of referred pain and in the uninterrupted duration of the agony. With this distinction these might be termed cases of angina pectoris hepatica, renalis, et hæc species omnes.

The first effect of sudden visceral pain, whether cardiac or general, on the movement of the heart is to arrest its action and probably could we at the moment of the onset of pain auscultate that organ we should detect an inhibition. This, however, like peripheral spasm, which is usually regarded as the cause of angina pectoris, is so early a phenomenon that it must very rarely be indubitably observed and when observed and present it is not necessarily the essential cause of the general complex of symptoms. The conditions usually first observed by the ear and the hand are the phenomena of depression which follow inhibition, associated in many cases shortly afterwards with those of a rescuing augmentation and acceleration of the heart's beat. Dr. Lauder Brunton was the first, so far as I know, to note graphically the cardio-vascular movements connected with valvular angina. In the Transactions of the Clinical Society of London (vol. iii.) he published a case of aortic valvular disease with sphygmograms in which he showed the quick small pulse of the agony and the larger and slower pulse of the interval free from pain. I throw on the screen a slide prepared from the published tracings. Dr. Brunton considered the pulse of the agony to indicate peripheral spasm and was at a loss to reconcile its rate with its assumed condition. Since Brunton's original observations, however, opinion has modified a good deal on this point and there are those who feel more disposed to regard the peripheral signs usually observed as those of empty collapse rather than of active spasm—of profound collapse in other words such as might be caused by other visceral and even somatic pain of a certain degree of severity. Sir Richard Douglas Powell, however, in his recent Lumleian Lectures before the Royal College of Physicians of London,[7] also describing what he terms vaso-motor angina in the case of a young man suffering from aortic regurgitation, spoke as follows: "It was curious to note the absolute extinction of all the aortic characters in the pulse which became contracted to a small, hard, pulsating thread, whilst as the patient sat forward leaning against a chair in great pain the bed shook with the violence of the cardiac beats and his neck and subclavian vessels could be seen pulsating with responsive violence. A dose of trinitrine quickly brought back the aortic features of the pulse and dissolved the painful scene. One could not observe the labouring beat of the heart—the strongly pulsating large vessels contrasted with the almost effaced small vessels—without appreciating the power of vaso-motor contraction to cause cramp or paralysis of a healthy ventricle; yet there are physicians who still doubt the efficacy of vaso-motor spasm in the mechanism of angina."

I presume it is because of the humane desire not to disturb unnecessarily the patient in the throes of cardiac agony that we find more frequent record of the condition of the radial pulse in these cases than of the heart itself. If, however, the heart of such a patient be examined it will be found that the extinction of "aortic character" which Sir Richard Powell noted in the radial pulse is also very distinctly appreciable at the aortic orifice itself. The usually very considerably hypertrophied left ventricle will be found to pulsate with increased frequency, the bruits significant of the valvular defect being almost or quite hushed, and increased tension in the pulmonary circuit indicated by a well-marked accentuation of the second sound at the pulmonary arterial orifice. There is repletion of the ventricular cavity and comparative emptiness of the extra-cardiac systemic arteries. The full and hypertrophied heart labours violently to rid itself of the residual stimulating and dilative burden of blood, not because it cannot jerk some of its contents into the larger comparatively empty vessels with more than "aortic" emphasis, but because its own intrinsic and momentary failure has cast upon it a paralysing weight which must be rapidly reduced if the organ is not to come to

[6] Allbutt's System of Medicine, vol. iv., p. 344.
[7] THE LANCET, March 26th, 1898.

a standstill. The small peripheral pulse which is associated with such valvular angina during the period of cardiac failure is not on this showing one of spastic narrowing but of empty collapse. The following sphygmograms which I published to illustrate a paper on the blood-pressure in angina pectoris in the Edinburgh Hospital Reports for 1895 may render my meaning clearer. (Fig. 2). The first shows the attack at

FIG. 2.

a, During angina at its height. *b*, Pain subsiding. *c*, Pain gone. *d*, Sphygmogram from the same case during a period of comparative compensation.

its height with a lowering of the predicrotic wave and a flat drag in the diastolic interval, meaning, as I think, that the collapsed and comparatively empty artery had failed to reach the lever of the instrument. In the next the cardiac force is increasing, its action becoming slower, and although blood still fails to reach the periphery in normal abundance there is a rise in the position of the predicrotic wave and an indication of dicrotism. Pain is still present under these circumstances but the patient is easier. The next sphygmogram represents the refilled and retarded pulse and the cessation of pain. The fourth and last tracing shows the typical aortic regurgitant pulse of the patient during a period of temporarily re-established compensation.

The conditions are somewhat different in the angina of arterio-sclerosis without valvular disease and also in those mainly associated with fatty degeneration of the heart. In the former, while the initial conditions of the attack are to my mind indubitably central, not peripheral, there may at times be noted a short period of simultaneous arterial hardening in association with a quickly pulsating heart. How much of this is spasm and how much the induration of an arterio-sclerotic and imperfectly filled vessel I have not been able so far to convince myself. The angina of the fatty heart, again, may be associated with a slow, full, and soft pulse without suspicion of spasticity, the irresponsive and degenerated ventricle throwing its contents into the systemic arteries with bradycardial sluggishness and in imminent danger of that syncope which so frequently overtakes it.

It has been mentioned that shocks which so markedly affect cardio-vascular movement may likewise influence secretory motion and I have suggested the presence of a supplementary or balancing secretion in such cases. Shock to the liver may, indeed, prove fatal to hepatic motion as shock to the heart may to cardiac motion, but it is probable for the reasons stated that minor degrees of shock may have their consequences averted by a supplementary mechanism in such a way as would not be possible but for that double innervation which is a fact in the anatomy of the viscera and but for that bilateral and double innervation which appears to play an important part in the innervation of unified or single viscera such as the liver and heart. This bilateral action is probably secured by an incomplete peripheral and plexal decussation which has not yet been demonstrated anatomically but of which there is good experimental evidence. Thus, as has been stated, section of one pneumogastric nerve has little effect upon cardiac motion, while section of both nerves permanently disables it, just as a similar lesion abolishes the glycogenic function of the liver.[8]

In addition to the transient phenomena of disturbed or excited but not necessarily disordered cardiac action to which I have referred in connexion with angina pectoris, changes of cardiac rhythm of a more persistent character may be met with, and on the nervous relations of these, taken as a type of viscero-motor irregularity in general, I desire to comment very briefly. I trust enough has been said to justify the thesis that in the regulation and maintenance of sustained visceral motion the nervous system always plays an important part. Its regulating faculty is more generally conceded, however, than its sustaining power. I assume, therefore, for the reasons stated, that in this respect also it plays essentially as important a part as the blood and the inherent irritability of the cell manifesting any particular form of motion. As I have stated the functional unit is not one but triune in every form of visceral motion, mobile, secretory, metabolic, and excretory, and that, differ as these may from one another in details of manifestation, they are subject to essentially the same order or regularity of action and to the same disorder or irregularity of action as the more objectively mobile form which we associate most readily with muscular tissue. With this perhaps unnecessary reiteration I proceed to say a few words concerning abnormal variations in cardiac action and their relation to the nervous system, regarding such as typical of other forms of disordered visceral motion.

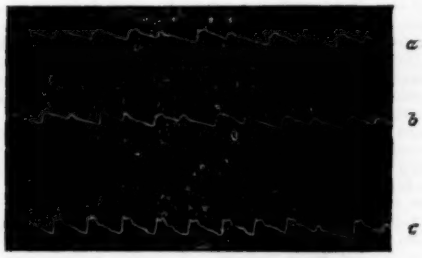
The heart's action, undisturbed by forced respiration, bodily exertion, or mental emotion is, normally, quite regular. The eviscerated heart of an animal recently killed is also usually quite regular. Auricular systole precedes ventricular systole with automatic precision. Circumstances, in other words, which induce variation in stimulation are removed and rhythmical cellular action, one of the factors in the triune partnership, for a short period, alone or assisted by some residual storage of nervous energy or some remnant of stimulation by blood, continues to act with the unvarying rhythm which blood, nerve, and muscle in common contribute towards during life, when the persistently isochronic and isodynamic organ is undisturbed by extraneous stimulation. The first observable departure from this isochronia and isodynamia is a variation in rate rather than in force. The heart-beats are all complete in themselves and if when more rapid they are individually less powerful than a single slower beat, they collectively carry on the circulation with much the same efficiency as when the heart's action is more regular, provided no call is made upon the heart for additional exertion. This condition, when not due to mental excitement, as it may be (in which case it may be characterised either by augmentation or by depression or by both these states alternately) is usually due to variation in the stimulation of the cardio-vascular nervous system caused by variation in the tone of the chambers of the heart and in the amount of their contents. This simplest form of abnormality may be termed "anisochronia" as variation in rate is more easily appreciable than variation in power. If the condition be present for any length of time the variation in force becomes more noticeable and to irregularity in rate is added irregularity in the size of the pulse wave. The systole may have half its normal force or less than half—a condition which may in general terms be called "hyposystole." (Fig. 4 *b*.) Now, inasmuch as the empty and eviscerated heart may have a perfectly regular rate and amount of systole this hyposystolic condition cannot be attributed to the amount of blood in the chambers of the heart. It must, therefore, be due either to the muscular or neural factor. The muscular factor, we have seen, with the nervous and hæmic factor at a minimum may act perfectly regularly and irregular post-mortem tremor of muscular tissue is most frequently observed in somatic, not visceral, muscle. On the other hand, there is abundant evidence—clinical, physiological, and pharmaceutical—to prove that stimulation of the nervous system may profoundly influence the action of visceral muscle in augmenting or depressing it and in hastening or retarding it. It seems, therefore, rational to conclude that variations in cardiac action during life, whatever the special character of the rhythm, must be largely, although not altogether, due to the combined or alternate and always associable play of the nervous mechanism which we have examined. Such nervous action even under abnormal circumstances may be rhythmically or arrhythmically exerted.

Reduplication of the second sound of the heart may at present be excluded from discussion, as it may be wholly due to hydraulic variation in the pulmonary artery and aorta. Triplication, however, otherwise termed *bruit de galop*, cantering rhythm and reduplication of the first sound of the

[8] Haliburton, op. cit., p. 670.

heart, while it is capable of being influenced by gravitational conditions and modified by posture, is essentially a retarded systole, or in some cases a systole followed by a very small supplementary systole which for definiteness may be termed a "hypo-hemisystole" or something less than a hemisystole. Like variation induced in the pulse-wave by respiration, the neutral factor is necessary to its production, as we may convince ourselves comparatively satisfactorily by a study of the more pronounced condition to which it is related—namely, quadruplication, or one of the forms of rhythmically dropped beat. (Fig. 3.) Reduplication of the first sound

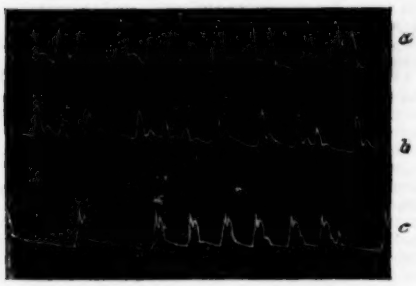
FIG. 3.



a, Occasional quadruplication. *b*, Regular quadruplication. *c*, Triplication with anacrotism.

has been variously accounted for. Dr. Sibson[9] considered it to be due to asynchronous action of the two ventricles, and Sir William Broadbent has recently expressed the same opinion.[10] Physiologists, however, such as François Franck, dispute the possibility of dissociated ventricular action, and clinical examination and sphygmography appear to me to support the physiologists Two ventricular systoles would of course mean two diastoles and reduplication of the first sound on Sibson's hypothesis should usually be associated with a reduplication of the second sound which it is not. But were the double systole situated in the left ventricle it would not necessarily imply a reduplication of the second sound. Now, sphygmography shows that cases of quadruple pulsation consist of a long systole followed by a short diastole and this by a short systole followed by a long diastole. (Fig. 3 *b*.) Systole, in other words, is followed by hemidiastole, this by hemisystole and this finally by a long diastolic pause. The tracings I throw on the screen will emphasise these points. It has been observed that digitalis induces this rhythm in some cases and this fact, it

FIG. 4.



a, Quintuplication. *b*, Irregular hyposystole. *c*, Occasional acyclia.

appears to me, supports a neural view of its causation. When the beat is triple and the first sound reduplicated these events are crowded up, the first short diastole is omitted and the triple rhythm with anacrotism results. (Fig. 3 *c*.) Instead of the bigeminal pulse of quadruplication, a trigeminal pulse may be present which consists of three systoles and two diastoles. It is a quintuplication. (Fig. 4 *a*.) In all these varieties the ventricles act together, not apart, and the regulating factor in the rhythm is, I believe, neural. The cardiac cycle may, we know, be altogether or almost suppressed, and this acyclia it may fairly be argued is a variety of inhibition and probably not only neural but more precisely pneumogastric in origin and due to local cardiac or distant reflex stimuli. (Fig. 4 *c*.)

Some of the varieties of abnormal cardiac rhythm mentioned may be of long duration, but they are essentially an adaptation of the organ to certain circumstances with a view to carrying on the circulation, and while they may at times be significant of cardiac failure they are not necessarily so and cannot therefore be regarded as pathological. It is not so in some cases of persistent *bradycardia* and *tachycardia*. In the former, as we know, the heart's action is abnormally retarded, the neural cause of such retardation being, it would appear, either *in* the heart or *outside* the heart. Dehio[11] showed that extra-cardial bradycardia could be accelerated by the administration of atropin and that what he terms cardial bradycardia could not be so affected. It is the latter kind which constitutes the graver danger to life. (Fig. 4.) The precise neural mechanism of the condition can only be surmised not having yet been demonstrated. Retardation should normally provoke acceleration, and as it does not do so it would appear in the absence of myocardial degeneration or some general depressant such as a poison, whether auto- or hetero-genetic, that the seat of the disorder is in the spinal visceral innervation of the heart, an examination of which will probably ultimately reward the labour of someone. The transient bradycardia which follows fevers such as pneumonia may be attributable to exhaustion of the spinal visceral nerves, and Goldscheider and Flatau[12] have recently shown that high temperature has a very distinct effect upon the appearance of central nerve cells. We know, however, as little

FIG. 5.

a, Persistent cardial bradycardia. *b*, Bradycardia with quadruplication.

positively about the essential neural causes of bradycardia at present as we do of those of persistent *tachycardia*. These very terms reveal our ignorance. There is some reason to believe, however, that persistent tachycardia like bradycardia may be of cardial and extra-cardial origin. My former colleague at the Great Northern Central Hospital, Mr. Spencer Watson, cured a case of persistent tachycardia by the removal of post-nasal growths. Martius also in his monograph has collected a number of cases in which a degree of persistent tachycardia was associated with disease of the pneumogastric nerve or nerves. I have already suggested that in some cases of cardiac dilatation associated with

FIG. 6.

a, Essential paroxysmal tachycardia. *b*, Sphygmogram from the same case showing the sudden restitution of normal pulsation.

persistent tachycardia a neural stimulation of the rich nerve-supply of the heart may be active in producing the condition and it is a common experience that the removal of dilatation also reduces the heart-rate to more leisurely and regular

[9] THE LANCET, March 28th and April 11th, 1874.
[10] Heart Disease, p. 34 (London, 1897).
[11] St. Petersburg. Medicinische Wochenschrift, 1892.
[12] Op. cit.

action. In essential or paroxysmal tachycardia, however, we have an interesting nervous condition, at present unexplained but usually associated with cardiac dilatation, in which the delirious heart appears to escape from all nerve control, inhibitory and accelerant, depressant and augmentative, and to revel for a time in the fœtal tic-tac of emancipated visceral rhythmicality. (Fig. 6.[12]) This form of run-away heart is usually pulled up sharp by what appears to be an augmented inhibitory action of the vagus which asserts its authority with surprising abruptness. The sphygmograms I show illustrate these phenomena. This sudden restitution to normal visceral motion is not unknown in other organs. The defective biliary secretion of non-catarrhal inhibited hepatic motion may be rapidly followed by normal secretion. The oliguria of an actively podagral state may as quickly be succeeded by copious urination just as the mental irritability of suppressed gout may suddenly lessen when the disorder finds localisation in a joint. That these rapid changes may be due to neural conditions there is good reason to believe. It is related of vom Stein, the patriotic and able opponent of the First Napoleon, that when he was dismissed by the King of Prussia at the dictation of the ill-mannered Corsican he developed a bad attack of gout which resisted all treatment, balneological and other, until Queen Louisa, overruling the complaisance of her not too heroic consort, procured vom Stein's recall to office. The gout disappeared forthwith and the metabolic and excretory cripple of yesterday, restored to mental and bodily vigour, successfully organised the overthrow of the insolent invader of his country.

Just as visceral disorder may be the stimulus underlying somatic sensory phenomena, so also somatic motor phenomena may be due to visceral disorder. Irritative, septic, and stagnant conditions in the gastro-intestinal canal may apparently be the efficient cause of clonic and tonic disturbances of the somatic muscular system. In the case of the myoclonus multiplex which affects some neurotic and neurasthenic dyspeptics it is probable that these painless spasms are due to some general irritant in the blood, frequently aggravated by a certain amount of tabagism. But the question of reflex of unabsorptive and toxic origin in wide-spread tetany is more difficult to decide. The bilateral tetany of the infant, for example, with carpo-pedal contracture so frequently observed at our children's hospitals, and usually in association with gastro-intestinal irritation of a pronounced type or with the recent history of such, might very plausibly be argued to be a reflex due to bilateral stimulation of the bilateral innervation of such a single tube as the alimentary canal. This view is moreover still more plausible in those cases in which the higher centres are quite unaffected and the patient grins complacently at his carpo-pedal condition. It is, however, possible that there are toxic agents which in certain quantities act like strychnine chiefly upon the spinal cord and the alcoholic extract obtained from the gastric juice by Bouveret and Devic[14] seems to have been capable of producing tetanic convulsions on intravenous injection. The motor disturbances, moreover, need not be limited to the lower segment of the nervous system but may, according to the authors quoted, become generalised and even attended by epileptoid phenomena and unconsciousness. Under these circumstances, however plausible at first sight a reflex explanation of tetany may appear, it is probable that the toxic view now more generally entertained is the correct one. In minor degrees of the affection it is just possible that reflex action may also play a part. In any case the intimate connexion between the visceral disorder and the neuro-muscular phenomena in question is indubitable. Whether some cases of somatic contracture of a so-called "hysterical" nature are of visceral origin cannot be stated positively, notwithstanding the large *rôle* previously assigned to the sexual system in these disorders. Renal calculus may, however, provoke a lateral contraction of the trunk on the affected side[15] which must be regarded as a true reflex and I have observed the same condition in a neurotic patient the subject of consolidation of the base of the left lung due to aortic valvular disease. The length of time for which "hysterical" contracture may persist removes auto-intoxicant influences from the purview of causes, and the final discovery in some cases of central sclerotic changes indicates the possibility either of original disease there, or of so-called functional changes becoming organic lesions, whether the original stimulus were splanchnic or not. The somatic hysterical contractures bear a very strong resemblance to an interesting group of cases which Mr. Clinton Dent brought before the Medical Society of London in 1897[16] in which a spastic condition of portions of the alimentary canal may simulate tumour, cause severe pain on the principles laid down in a previous lecture, and even justify the operation of laparotomy from the urgency of discomfort. This intestinal neurosis or contracture appears like its somatic equivalent to be in the first instance reflex rather than due to a more general poisoning of the centres.

In bringing to a close this course of lectures, of the many defects in which no one can be more conscious than I am, I have again to express my thanks to the Fellows of the College for the indulgent courtesy which induced them to appoint me to the office and to pray that the leniency which they have already shown may suggest excuses for the inadequate manner in which I have executed my task. I am aware that I have touched but the fringe of a great subject of entrancing interest and supreme moment, the better knowledge of which is calculated to have an important influence upon much that is of interest to us as men and as physicians. If, however, in their opinion I have added anything in the course of these lectures to such knowledge—if, buried in the worthless quartz of much nebulous hypothesis, they should deem it possible to detect some grains of golden truth—I shall feel happy in believing that my labour has not been altogether in vain and that I have shown myself sensible of the honour which they have conferred upon me in appointing me to the lectureship.

12 Figs. 3, 4, 5, and 6 have already been published in my book on Cardiac Failure and its Treatment (London: Rebman and Co.) and Fig. 1 appeared in the Brit. Med. Jour., March, 1896.

14 Revue de Médecine, 1892, Jan., p. 40; Feb., p. 97.

15 Allbutt's System of Medicine.

16 Transactions of the Medical Society of London, vol. xx., p. 257.

The Harveian Lectures

ON

DISEASE, ITS TREATMENT AND THE PROFESSION OF MEDICINE IN 1899.

Delivered before the Harveian Society of London on Dec. 1st, 8th, and 15th, 1898,

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SENIOR PHYSICIAN TO ST. GEORGE'S HOSPITAL AND JOINT LECTURER ON MEDICINE TO THE MEDICAL SCHOOL; SENIOR PHYSICIAN TO THE BELGRAVE HOSPITAL FOR CHILDREN.

LECTURE III.[1]

Delivered on Dec. 15th.

EDUCATION AND MEDICAL PRACTICE: THEIR PRESSURES AND THEIR PROSPECTS.

GENTLEMEN,—Our attention is claimed to-day by the medical profession, its labours, its difficulties, its prospects, and its rewards; but the future of medical education and some questions of practice bearing upon our status will be dealt with more prominently.

THE PROFESSION AND ITS MEMBERS.

It has been said with truth that we are all debtors to our profession. We are associated with its great achievements and taught to appreciate them, and we are conscious also of an honourable participation in all its good works. Lastly, unlike what obtains elsewhere, a livelihood is fairly assured to all. There are, however, material concerns which through pressure of daily avocations are often imperfectly safeguarded or, may be, treated as secondary. Yet for the majority there was a practical purpose in the selection of their career. A few inherit medical traditions and grow up in a medical atmosphere; for them medicine may be a "calling"; for the remainder it is an "opening"; and once they have engaged upon their lifelong labour the material aspect of things cannot be ignored. How closely this object is connected with our professional position will be made clear as we proceed.

1 Lectures I. and II. were published in THE LANCET of Dec. 17th and 24th, 1898, respectively.

OUR PRESSURES AND OUR REFORMS.

Witnessing disappointments and failures in every walk of life it would ill become us to complain of personal hardships or of those purely professional difficulties to which I shall allude. They may be regarded as transitory. The profession is undergoing "a cure of discomfort by counter irritation" which is but a stage in the return to a healthy state. Our pressures are of two kinds: (1) those exerted from outside by the public, by the State, or by the conditions or fashions of our time; and (2) those from within, our internal reforms, always well meant though liable to defects and to the need for readjustments. The lateral pressures have been sufficiently dealt with. Our worst pressure, however, has been from below and it is to this that we shall presently revert. From above our limitations arise from too much or too little legislation; and of late instances have not been wanting in which the unreasoning opposition of the uneducated vote and that from noisy or hysterical sections have been brought to bear against our action with the sanction of the law. Thus some of our professional events have been retrograde, with great detriment to public advantage, to national credit, and to personal safety. I need not dwell upon recent achievements such as the ticket-of-leave given to small-pox and syphilis and the setting back of the clock of experimental science. These evils were avoidable. Fortunately they may yet be remedied except for the loss of irrevocable time. Compared with the dealings of those well-ruled nations whose progress is not allowed to swerve from common sense and who follow a straight road to any social object we are in this country, thanks to these manœuvres, left hopelessly behind, electing to follow when we might lead. These risks and delays are the sport which delights a free people and which by way of compensation may perhaps keep us active and in fighting condition.

The lateral pressure will probably be relieved for the growing generation. The world is expanding at a rate for which there is no parallel in history. Looking back four hundred years, the discovery of America occasioned great developments and the treasures torn from the harmless natives went to feed the growing trade of the world. But the conquerors alone reaped the benefit and civilising operations were slow to compensate the vanquished for the barbarous inflictions of conquest. The exploration itself was not rapid and occupied many years. In our times an entire continent has not only been explored within a few years but is being wired and railed and the machinery of civilisation called into existence simultaneously at many centres. For this growing world medical aid will be requisite. China also may offer a large field where the English physician may come into fashion. The colonies, especially those where gold is the attraction, are only beginning their period of expansion. But we must realise that Canada, Australia, and New Zealand are no longer dependent upon home supply. They are now medically self-supporting; the pupils of their universities come home for the study of special subjects and to watch our clinical practice, but they are already fully qualified and their numbers are sufficient for the local needs.

Our internal reforms.—Other reforms are of our own making and the chief of these bear upon medical education and examinations and the rules which govern our mutual relations and our relations with the public and the State. Well considered and measured to suit the times, they may not be permanently adapted to meet all future needs; but they cannot be again modified until after a period of friction which makes us long for the next change and yet dread the unknown complications which it may cover.

PROFESSIONAL ALTRUISM AND SELF-SACRIFICE.

To practise medicine is to learn that our lives belong to others rather than to ourselves. There is an increasing altruism in the lives of most men, but a great deal of this is unconscious and passive, and the mass of mankind are unaware that they are wearing themselves out for the sake of others. Our altruism is both conscious and intended; it is an active altruism, which contrasts with the ways of diplomacy and of commerce. It is indeed a unique sight, that of a whole profession working strenuously for the sake of its fellow creatures at the systematic destruction of its own means of support. Is any disease voluntarily allowed to survive in the individual or the community, any contagion given free scope, any sanitary defect uncorrected, any oppressive or deleterious conditions of labour allowed to proceed unchecked? It is left for others outside the profession to marshal every resource of ignorance and prejudice for the purpose of keeping alive fatal diseases. To them the medical profession might have been thankful, but in our medical press we find only indignation at the resulting waste of life, of health, and of happiness.

The same unreckoning policy has led us to instruct our patients in practical matters of health. Institutions for teaching the principles of hygiene and elementary treatment and first-aid societies have been founded all over the country, every opportunity being utilised to spread among the public ample knowledge of the arcana of medicine, and with the same view medical writers are now lending their pen to the press.

The lateral pressure in our ranks.—But there are limits beyond which generosity itself ceases to be wise. The quality of work deteriorates when instead of strengthening it wears the labourer, and to avoid this is of importance, not alone to the profession. While the earnings of other workers have been rising with the general increase in our national prosperity the reverse has happened with us.

Events have brought about difficulties for which none can be held responsible. All sections of the profession have felt them, each section imagining itself to be the only one to suffer. To put the matter briefly, there may not be too many medical men, but whilst there might be work for all this is neither evenly apportioned nor remunerated. Of the two chief contributory factors the overcrowding of the profession is to my thinking the least. In proportion to the population our numbers are not so overflowing as in some other countries nor are they much greater than at earlier periods. But the opportunities for practice have been restricted by science and by charity. And it is now manifest that by seeking some relief from these difficulties in the provident system individual members have helped to restrict the supply of employment for the profession.

THE PROVIDENT SYSTEM AND ITS PROBLEMS.

In its ideal form this system seeks to secure the greatest good to the greatest number, benefiting alike the deserving poor and the profession. It seems to have been an early social development in China, dating beyond the commencement of historical times. In this country it is largely a growth of the second half of the century. Its principle is the insurance of the healthy against the expenses of future illness. That principle has been accepted by the profession as belonging to our scheme of usefulness and as tending to professional advantage if only it were fairly worked. The progressive development of the system and the increasing growth and prosperity of the provident societies is a spontaneous testimony to the worth of the medical advantage secured, but for the profession there has been more promise than realisation.

Our services are for many a necessity and it is right that they should be within the reach of those for whom they are intended. The poorer patients have five courses open to them: (1) some of them are sufficiently near the margin of pauperism to enable them to obtain Poor-law relief; (2) many apply to the chemist for advice and medicine, and this largely keeps up the practice of counter prescribing; (3) others are anxious for treatment by hospital physicians and surgeons and endeavour to obtain it at the hospital for which they have a predilection though this may not be the nearest one to their own home; (4) a large number enrol themselves in the lists of the provident dispensaries and of the clubs; and lastly (5) others prefer to get their advice independently and at the time when they think they need it. If the medical man's charges should be prohibitive he would drive this humble practice into the other channels which have been indicated. In order to meet the necessities of the case there must be for his advice a sliding scale within the reach of the humblest means. This unavoidable smallness of remuneration is a reason for his preferring a system where it is to a certain extent disguised. On our side it is a wise provision that the healthy, whilst able to do so, should contribute to the support of the profession whose services they will require when stricken with disease. Payment from the healthy instead of from the sick is, indeed, a principal admirably adapted to meet the crisis. This alone would prove an attraction; but there is a further inducement in the advantage of actual work. Unfortunately the slender compensation has been only partially reaped by the profession. Benevolent in its intent, coöperation has opened the door to

novel dangers and abuses of which the practitioner is ultimately the victim.

The risk to independence and remuneration.—Our prestige is endangered by any hard-and-fast compact which places a definite value upon services. The contract is then apt to be regarded as a commercial transaction in which both sides are supposed to obtain an equivalent. The sentimental reservation may be kept in mind by one of the contracting parties. It is but too likely to be lost sight of by the other and from a strictly legal standpoint it may not then appear that the payment is not a full compensation but an honorarium only. The medical man's position is no longer that of unrestricted freedom and his place not easy, as at the best the bargain is a hard one. If the scale of remuneration should be unfairly low the growth and prosperity of the societies would entail a proportionate extension of the attendant injury. And when the hardship of inadequate payment has once been submitted to there is a danger that the curtailment may be made yet more severe. This downward progress as well as the low level now reached are the serious aspects of a system which we may look to the coming century to ameliorate.

The provident associations.—The beneficent institutions known as dispensaries seek to be self-supporting, but a charitable interest is taken in their management by members of a richer class, and this is a saving clause, for much depends upon the spirit of those who administer as well as of those who receive the relief. The collateral advantages which are often opened up by those who serve a well-conducted dispensary render it a matter for regret that it has not been found practicable to extend them to all the local practitioners or at least to as many as may wish to participate. The remuneration itself is small, but it is fairly divided according to the work done. The difference between these institutions and the *friendly societies* is fundamental; in the latter the softening element of charity is less prominent and that of sentiment in not included. In early days the medical man's willingness to help them may have been considered a favour. This is now changed and they have not always refrained from turning his difficulties to account. Other associations built purely upon the principle of commercial insurance, although businesslike in some directions, are free from any scruples connected with medical etiquette and in other directions there is even less regard than in the friendly societies for the individual interests and for the professional dignity of the medical officer.

The prevalent abuses.—The defects which have arisen are clearly unintentional and the outcome of ordinary economical principles, the societies seeking their corporate interest and securing it, whilst the practitioners have too often unwarily sacrificed their advantage. They include: (1) the obviously inadequate remuneration for excessive work and responsibility and the partial payment which is sometimes made when it should be made in full; and (2) the unjust appropriation of advantages intended for the poor by those able to pay. Were the charitable ministrations bestowed only on the deserving poor their cost would be a lighter burden. But it is well known that owing to imperfect checks and to the failure to realise the fault of which they are guilty many thoughtless individuals receive relief who are really able to pay a fair honorarium for private attendance, and this is contrary to the intentions of those who manage these institutions. A friend from the provinces reports to me an instance in point: "A farmer in quite a large way was in a club. After being ill for a year he desired to employ a private medical man, to whom he then paid 3*s.* 6*d.* or 4*s.* a visit. Thinking he would like still further advice he paid five guineas as a consultation fee with the greatest readiness. The medical officer must have travelled several miles of bad road to see this man, the only payment being less than cab hire." The same friend also writes: "Years ago most clubs' contributions were at the rate of 5*s.* per annum per member and that when wages were much lower than now and when membership was confined to the genuine working man. The working man earns more and pays less." ..... "Many clubs unfortunately have lowered the subscriptions to 3*s.* 6*d.* per annum." This abuse is not sufficiently guarded against in the organisation of the clubs. Some men of substance are admitted as members or retain a membership assumed in less prosperous days and do not refrain from getting their medical advice at an almost gratuitous rate. The practice of others is thus made to suffer besides that of the medical officer, for should he fail to meet cheerfully the behests of his employers, or refuse to submit to a reduction, the club may find a stranger to fill his place, and this will mean for his *confrères* additional competition in an already restricted field of practice.

The worst troubles arise in connexion with the medical aid societies. They actively canvass the public. Their medical man is advertised, not always fairly, it is said; but he may have to suffer for the advertisement. And the climax is reached when he is victimised not only by the societies but by intermediate agents. Instances have often occurred when agents have induced people to insure and to transfer themselves from the private list to the club list of the same medical man. It can hardly be doubted that funds have gradually accumulated out of the profit on the medical officers' work. In the case referred to by the same informant they did not get more than two-thirds of the payments made to the medical aid societies, whilst the least that should have been done was an equal division of the surplus after payment of working expenses. Illustrations such as these will suffice to show the mode of injury suffered by the profession.

The detriment to the profession.—Diminution in practice goes hand in hand with a lessened value set upon professional services. But the worst aspect of the whole position is the further decline in dignity and emolument due to the fact that, small as may be the pittance, it has its market and that any competition can only lower its figures. The low value which is thus forced by contract reacts upon the remuneration of others who but for this would have been in a position to resist the unmerited depreciation of their services. This means, moreover, a progressive reduction in the opportunities for private attendance upon paying patients of the humbler class, and this reduction tells even more upon practitioners who are not connected with the clubs than upon those belonging to them. Thus special correctives are needed against the evils known as the tyranny of the clubs, the lowering of the fees by competition, the exploitation by medical aid societies, the underselling of medical work, the insufficient wage limit, and also the admission of women and children at a lower subscription than men though they need more attention and previously contributed to private practice.

The remedy.—The continued expansion of the insurance system renders imperative some early provision for that minimum scale of honorarium which shall safeguard the public and the profession and for the adoption of an efficient wage limit. Where is the remedy to come from? Its possible sources are State interference, corporate action, independent combination within the profession, which might be purely local or more general, and education. Some action has already been taken, especially in the direction of local combination; and much credit is due to various local groups for their energy in resisting the pressure of powerful bodies. Though the action has been a purely local one the example may tell at a distance. Indeed, it has suggested the idea of an extended combination which might include representatives of all local associations and through them of all practitioners interested in the provident system. A totally distinct action has also been proposed—that of State aid in this difficult matter. This is a remedy not without a danger, for if the State is to come to our assistance in the details which we ought to arrange for ourselves it is possible that its inelastic control might fall heavily upon us and trammel us when it would be much to our advantage to be free. But leaving State control aside there remains the official action of the professional governing bodies who alone can speak for the entire profession. If I mistake not there is a strong feeling abroad that these difficulties should be noticed officially, but others are inclined to think that the profession ought not to be committed and that independent combination should be able to provide a remedy. Between courses so different it is difficult to choose. One of them pledges the profession, the other allows free scope to self-government without the assumption of too onerous a responsibility.

Among various suggestions in connexion with combination one worthy of notice is made by the Special Commissioner of THE LANCET:[2] "The best method for abolishing medical aid associations, clubs, &c., is for the profession to establish a model institution of its own open to all local practitioners and managed exclusively by the medical men themselves. Then no practitioner would have any excuse for selling his services to a speculating commercial concern; if he wanted

[2] THE LANCET, Oct. 29th, 1898.

club patients he could join the public medical service. All patients who could not pay the usual fees would have the option either of joining this institution as subscribers or of claiming relief under the Poor-law. The battle of the clubs would be terminated, for the medical clubs would cease to exist." This proposal suggests a new field for professional activity. In itself the idea sounds practicable so long as care is taken that we are not involved in any undertakings outside the scope of the profession. Self-help is sound policy, but in this matter it is regarded with good reason as unequal to the task. There is a difficulty in repudiating arrangements firmly rooted in localities and any efforts in that direction are but too likely to be defeated by the action of members of the profession who are outside these local combinations. To meet this difficulty it is not to be wondered at that the General Medical Council should be appealed to for an exercise of their power to register and approve those arrangements which have been found by experience to be most suitable to the various districts and to restrain registered practitioners from an unprofessional intrusion which tends to render joint efforts nugatory. This would doubtless afford the easiest way out of the present complication provided it could safely be resorted to without prejudice to our future. It must not be forgotten that a march has been stolen upon the profession owing to individual members having entered into treaty with organised societies. It is to be feared that the local combinations must remain hampered by the influence of these unfortunate beginnings and that their proposals might not come up to the level which the profession may have in prospect when the time comes for corporate and entirely representative action. In view of that object it might be undesirable that the profession should stand committed to any adjustment arrived at locally or even by a combination of many local groups. Indeed, there might be a danger lest any larger combination might wear in the eyes of the public an importance other than that which it claimed for itself and be thought to carry a mandate from the profession. In this respect there is perhaps an advantage in combination preserving for the present its purely local character.

The reasons for delay.—In favour of a policy of waiting the fact should be remembered that we are still within the period of transition and that we cannot yet foretell the proportions which the coöperative movement may ultimately attain. How best to deal with the great question is another uncertainty. Should it be by means of unofficial combination within the profession or by the action of our representative authority, the General Medical Council? If by the former method practical conclusions may be obtained at an earlier date, but they may be found to have fallen short of the requirements which the future may disclose. If by the latter considerable delay can hardly be avoided but the value of the result would be the greater in proportion to the time involved in its elaboration. One point appears to be clear. Any final settlement should be made on an independent basis. A privilege usurped, however unintentional the usurpation, is not from the standpoint of the injured party a fair basis for negotiation. All local attempts at readjustment must suffer from this disadvantage. It must be made evident that the profession repudiates the estimate which has unfortunately been placed upon the value of the services of its members through the accident of circumstances even more than owing to unguarded action on the part of a few. Though I may not have much support in leaning towards cautious delay in any comprehensive handling of the difficulty I feel sure that I am with all of you in thinking that its study cannot be safely postponed and that it should engage the earnest and early attention of our authorities.

The remedy from education of the public and the profession.—There is a different remedy, most effectual, but slow—the teaching and the appreciation of that which we owe to ourselves and which is due to us by the public. On our side the great body of the profession are guided by those high principles which are being universally taught. The dangerous few must be either educated up to its level or kept out. It is difficult to overrate the influence which can be exercised on the minds and dispositions of our pupils whilst they are passing through the medical schools. More may be done perhaps to raise in their youthful mind a superior ideal of the dignity and of the unity of the profession. Men cast in this mould might be allowed to shape the higher interests of the profession wherever they go. Much more general is the lack of due appreciation on the part of the public, especially among the lower classes who are not unlikely at times to misinterpret the most charitable intentions. Literature might do much to enlighten them as to our position; and in the recent lofty achievements of the profession there is a theme which, if properly handled, might work in the direction which is wanted. The remedy would thus consist first and foremost in the cultivation of a high ideal in the study of medicine, and in the second place of the authoritative influence which combined action might exercise upon the press.

MEDICAL EDUCATION.

The aspects of this subject which you are invited to consider are the professional examinations and their standard, the general scheme of studies or curriculum, and—not least important—the preliminary examination.

Examinations are a necessary evil. The public must be protected and a mass of important facts must be grasped by the student. But under this load the freedom both of study and of teaching suffers and imagination and original thought are less developed than memory. I would be the last to criticise adversely the present system. It is regarded by those able to judge as the best that could have been framed and as a vast improvement upon all previous attempts. It must command admiration in respect of the completeness of the teaching and of the amount of the knowledge required. But we have recently heard it from great authorities that the burden of scientific facts is becoming intolerable for the student of medicine and that some part of the burden must be removed; and in anticipation of a yet distant revision it may be permitted me to bring forward impressions gathered from some observation of the student and of his work, especially in their clinical aspects. A few advances in that direction would bring us almost within reach of a very perfect system. Clinical work is for us all the essential and the almost entire professional function; and the difficulty is how to give it a share not altogether disproportionate to its importance, since, without exaggeration, it might claim attention during the entire period of medical education, whilst in that time a vast number of important subjects have to be dealt with.

The preliminary examination and the recruiting of the profession.—The entrance examination is our Rubicon—not to be crossed without influencing the fate of individuals and of the profession. Parents, and particularly those who belong to the profession, are anxious to start their son without delay on his long journey through the curriculum. But in his interest quite as much as in that of the public and of the profession our gates should not be thrown open too widely lest he should be caught in a groove in which, as time wears on, he may find neither success nor escape. Physical strength and staying power are needed, not only for medical study, but yet more for practice, to meet the fatigue of country work or the constant worry in town. Unusual gifts of the mind never were essential, but weak or imperfectly trained faculties should exclude. Now more than ever endless painstaking and endurance are the chief requisites. Medical students need not be picked men, but tried men they should be; and to ensure this is the chief office of the entrance examination which at the same time might be a means of checking an excessive supply. To those familiar with its difficulties the study of medicine seems to be too lightly undertaken and with insufficient preparation. In the navy professional life begins quite early and the studies are thenceforth directed towards the profession.

A similar early direction of the studies of the future pupil would relieve some of our troubles. Far from there being any idea of cramping his preliminary education there are practical and useful subjects, such as chemistry, botany, zoology, and geology, which would expand it. Our opportunity is to frame an entrance examination which should test the men as to their fitness for their future labours but should not demand of them anything wasteful from the point of view of their life's work. On the contrary, this examination might be rendered practically useful in relieving as much as possible the overloaded curriculum. An utilitarian position has been openly taken up in connexion with the preliminary examination and it was thought useful to sacrifice the ornament of a classical education as a necessary accomplishment. It remains doubtful whether the promise which had been held out as a compensation has been fulfilled. Though the study of Greek is discredited the ability to trace in a Greek dictionary the meaning of

professional terms must appeal to reason as a requirement so long as our medical nomenclature is chiefly Greek. Since Greek is not an absolutely dead language it might perhaps be taught in the elementary proportion needed on a modern basis and without much loss of time. The utilitarian reform seems to have stopped short at this sacrifice of the classics. Yet there are studies now neglected in the curriculum the rudiments of which should not be entirely unknown to members of a learned profession—I refer to the elements of botany, of zoology, and of geology which are most desirable. If made compulsory together with chemistry and physics in the schedule of the preliminary examination these subjects would be useful to the student and educationally they would be some compensation for the loss of a classical training.

The curriculum.—How different medical education in the days when the curriculum was of two years and examinations were such as to suit that training! The curriculum was extended to three years and for a long time it was nominally four years, but in reality much longer for most students. The greatest improvement in medical education is the recently introduced five years' curriculum. This extension has already produced the best results, yet so much pressure remains that some change may become necessary early in the next century. The subjects are so numerous that they hardly fit within the period and from examination to examination the candidate has to slave to the end of his time. The question arises whether the best use is made of the additional year and whether a special claim upon it could not have been established in favour of our professional training so long and increasingly sacrificed to the preliminary subjects.

The old-fashioned apprenticeship was given up long ago without any equivalent as a substitute. It is impossible that we should ever return to it. Yet it was a thoroughly practical though primitive method of learning as much of the profession as the local opportunities allowed. When the apprentice came to town he was for his years a man of practical experience and in looking back upon his early difficulties and doubts he could appreciate the value of the theoretical knowledge to be gained in the dissecting room and in the wards. In that arrangement the supply of scientific knowledge was scanty but there was little waste from the point of view of utility. This distribution of the student's work has been completely reversed, but the partial sacrifice of the practical professional studies was the unintended result due to the desire to cultivate a higher science in the service of medicine. Unfortunately, for a long period the teaching of the sciences had to be theoretical and by lectures without any practical participation on the part of the learner. Thus the student, deprived of his apprenticeship, spent his early years in studying practical science in an unpractical way. When he joined the country practice as a qualified man it was the old apprenticeship over again—most things practical yet to be learnt—only the apprenticeship was at the wrong end of his time.

The academical and the utilitarian idea.—The present system might be regarded as "academical" to a fault. The subjects are dealt with as it were in compartments. The pupil is taken through each of them from its beginning to its end. This development was greatly stimulated from our seats of learning and in part reflected from universities abroad. Science was to be taught along systematic lines rather than towards any lateral goal of temporary or limited usefulness. The old universities have now given a practical turn to the academical idea and the medical schools throughout the country have laudably followed this intention, but not always with the necessary facilities, and in spite of a dearth of that first of all requisites, time, on the part of the student. Thus he has often had a complete course, but, as in those hasty visits to the wonders of the world, little of the inside of things may have been seen by him; he might perhaps have done more for himself had he attempted less. Too often also the teaching of valuable elementary subjects is practically divorced from their uses; and when the time comes when the chemical, the physiological, and the biological learning and methods might have been of practical value they have been forgotten. Often the ordinary student does not seem to connect the idea of the methods which he has applied in the physiological laboratory with the self-same methods as used in the wards. This would seem to suggest the desirability of associating, though not at too early a date, a medical purpose with the teaching of anatomy, physiology, biology, and chemistry, and to render their applications more clinical.

Method, which represents the academical idea, is essential; but it matters comparatively little in which field the mental powers are drilled. Any of the sciences well learnt, but particularly anatomy and physiology, would serve this educational need. But the utilitarian or professional idea looks to those few great principles and facts without which no physician or surgeon ought to trust himself to work as those upon which the main stress ought to be thrown in the teaching of the sciences. With these at his command the pupil might progress by imperceptible degrees to a higher level of scientific and clinical efficiency, and the acme of his scientific training would be the study of practical pharmacology which combines all the sciences bearing upon medicine. Here the better men would find their opportunity for individual research and intelligent clinical work would be stimulated.

We do not notice any progression of this sort in our present system. Whilst elementary physiological matters are imperfectly grasped some of the most difficult problems, those which tax the expert, are made the study of the beginner. For their due appreciation his highest level of scientific training and experience, his later periods of study, are best adapted. There is much to be said in favour of reserving these higher scientific developments as a reward for the veteran student. The younger student's practical work in laboratories might with advantage be concentrated upon those methods which are of practical use, further knowledge being added upon a firm foundation of facts previously known. Thus, whilst avoiding the risk of a premature entry into the wards it might be useful to shift a great deal of the practical physiological work from the physiological to the clinical laboratory. Work performed there in connexion with the examination of the urine, of the blood, of the physical conditions of the normal organs—a subject hitherto neglected—the study of the heart sounds independently of murmurs, of the respiratory sounds when uncomplicated by disease, of the position of viscera as recognised by palpation and auscultation would never be regarded as wasted either by the student or later by the practitioner and would be useful additions to the practical work of physiology. The full practical apprenticeship of the young clinical student would comprise a period of work in the physiological, in the chemical, and in the pharmaceutical laboratory. But for the greater number the chief apprenticeship would be that in the clinical laboratory, where he would acquire at an early date familiarity with those methods and apparatus which belong to his own future work.

Clinical laboratories in connexion with teaching hospitals are a great need for students and for research. Whilst in this country most philanthropists have made it their ideal to supply a sufficient number of beds and have overlooked the real pauper in the hospital, science, and the real need, that of the knowledge for curing the diseases which are put into these beds, a much clearer view of things has long prevailed on the other side of the ocean. Practical sense has made it obvious that the object of hospital treatment is not euthanasia but recovery, the secret of which cannot be learnt without the means of study. The time cannot be long delayed when the necessity for a clinical laboratory for all hospitals, however small, will be recognised in this country. And when this need is more widely understood among us generosity will soon flow in this neglected channel. In medical schools clinical laboratories should be of adequate size and completeness, but special research must continue to be conducted in laboratories or institutes of a more elaborate order. Of these we already possess a few at our universities in London and now at Liverpool. But many more are needed and there is ample scope for private munificence.

Clinical medicine.—The cry from the obstetric side is, "Give us more time to train the clinical pupil in the most responsible and important part of his future practice." A justifiable demand; but how can it be granted when clinical medicine itself is starved? Nominally three years are provided for clinical training, but too often after upwards of two years absorbed in the preliminary studies these subjects are forgotten and may have to be learned again at the expense of time properly belonging to clinical work. If the subjects are thus to overlap and to be blended after all would it not be economy to begin the clinical training earlier and to adopt the policy of a continuous and progressive study of anatomy and physiology, increasing stress being laid with

the progress of education on the higher aspects of both sciences as they bear upon clinical work?

The elementary clinical work seems to be too long delayed. After much time devoted to pure science and to examinations the pupil suddenly enters the wards unprepared. To him all clinical things are new. He is yet unfitted to utilise the advantages of a clinical clerkship which too often is conferred upon him at this stage. General elementary clinical practice is what he needs, not the exclusive association with two or three cases which he is unable to investigate for want of sufficient general experience of patients and of clinical methods. This he would quickly gain in the wards by contact with others of older standing whilst completing his knowledge previously acquired in the practical work of physiology and of chemistry. A few weeks spent in this way within sight and hearing of all that concerns disease and its investigation would enable him to take up with full profit the privileges of a clinical clerkship and to apply himself to the practical study of disease and of its treatment in association with the physician whose functions do not include the teaching of elementary methods. Inefficiency at the onset would be a less serious objection if the clinical clerk were prepared to retain his office until he had exhausted its opportunities, but he lacks time for this. Barely has he completed six months of this clinical work and he is taken away to other subjects without any chance of holding the valuable office again. In this way the most important part of a clerk's advantages are often lost to him and this accounts for the unfinished clinical condition in which so many have entered upon practice. The five years' curriculum might have mitigated this evil, and some men in their fifth year have sufficient wisdom to walk the hospitals when an opportunity arises, but the greater part of their time is claimed for other pursuits and no provision has been made in the schedule for the much-needed extension of the clinical training.

Medical education would gain much in being made more continuous by blending the clinical idea from a relatively early date with the scientific studies and by keeping up a progression in the higher studies of anatomy and physiology. The student would find interest and meaning in each laboratory method because shown to be connected with some clinical point and his clinical anatomy and clinical physiology would remain his valued and lasting possessions.

Clinical anatomy.—Anatomy, the "mathematics of medicine," will never cease to be indispensable and paramount among preliminary subjects, a fitting introduction to the most laborious profession. I do not know which is the greater wonder, the teaching of anatomy or the feat of learning it. Might not labour and time be economised? A thousand brains have been exercised as to how to render its study easier for the student on the old lines till we almost despair of ultimate success. Yet if it be true that elsewhere there are shorter methods we cannot afford to neglect any help.

Can "anatomy" be compressed or extended?—No part of anatomy is superfluous; but we cannot forget that for the sake of this completeness entire subjects are being thrown overboard. Some parts of anatomy are of supreme importance throughout professional life and the final examinations wisely require a knowledge both of surgical and of medical anatomy. But the average student has to learn these parts of the subject over again because meanwhile he has been allowed to forget them. The knowledge slowly and laboriously built up collapses like a house of cards as soon as the strain is over. If this is to be the result too much time would seem to have been claimed by anatomy at the beginning. The first year might suffice for undivided attention to the foundations of anatomy, whilst further instalments might be added by degrees and with a practical bearing. A study of the relations of parts might thus coincide with the teaching of operative surgery and medical anatomy with that of practical medicine and of clinical work. The term "clinical anatomy" includes both the surgical and the medical aspect. In both cases the long anatomical curriculum should lead as a net result to an accurate knowledge of those parts of the body with which we shall be professionally concerned. If the rest is to be finally forgotten might not its teaching be compressed? For the higher examinations a late application to anatomy has always been necessary and this shows that the suggestions thrown out are not absolutely unpractical.

Clinical physiology.—Similar considerations apply to physiology. In physiology we use too little our great opportunities of studying man. What would not Harvey have accomplished had he been armed with our present instruments and methods of investigation? Have we done full justice to his great example in cultivating physiological observations in the human subject? What should we think of a practical course on the circulation which did not include listening with the stethoscope to the heart sounds and learning accurately where they are to be listened for? Or shall we deal practically with splanchnology and not make ourselves familiar by palpation and by percussion with the position of the various organs? The ophthalmoscope reveals some of the processes of life without interference with their integrity and the laryngoscope equals the perfection of the ophthalmoscope as an instrument of demonstration. Practical physiology, taught as it is according to the happy tendency of the day by personal instrumental manipulation, would hardly be complete without a knowledge of these among all other physiological instruments. Their exclusion under any pretext would lay us open to the reproach of a deliberate neglect of those instrumental methods which are the only ones professionally useful to us. All this is the physiology which is essential—not abstruse or difficult or repellent—and these physiological observations, though so important and indispensable, are of a purely elementary nature. They might afford an easy rise to the higher, truly difficult physiological inquiries for which many a young student is at first totally unprepared and remains to the last unappreciative, whilst the living body appeals to every intelligent youth. These, therefore, are instrumental methods to which the student might be initiated early and a skill in which he might then have ample time to develop. Efficiency of this sort is child's play to the learning of musical instruments. It presents a little difficulty only for the less gifted minority and for them of all others it is important to provide a long apprenticeship. The advantages of such a system would be great and would tell at both ends. Early in his career the student would be awakened to a professional interest in studies which would henceforth assume for him in all their theoretical details a practical purpose. The gain at the other end would be incalculable. Instead of his helplessness in approaching the bedside the novelty of the situation and its strangeness would have long been removed. He would feel the confidence of an observer and might proceed to truly clinical studies of disease instead of wasting the clinical opportunity upon mere instrumental practice at the wrong time.

Centralisation and the one-portal system.—The continued agitation for reform has been a prominent feature of recent years. In this the profession has shown its earnestness in the cause of progress, in spite of the conservatism which renders it tenacious of its traditional independence, a conservatism bred of constant contact with nature and trained by the practice of self-government. Centralisation is the question of the day; it lies behind most of our present problems and in particular of those relating to university teaching, to the multiplicity of schools, to the variety of examining bodies, and to the relative value of the titles conferred by examination. The allurements of centralisation are great and great is the longing for it on the part of the categorical mind. But we may be well advised in not departing more than is unavoidable from the opposite system, perhaps less perfect in its form but more fertilising, a system to which we owe that which we are. Let us beware of sacrificing the vitality and spirit of our great professional bodies to the doubtful advantage of a monotonous uniformity. The one-portal system was some years ago even more urgently needed than it now is. Further improvement is necessary, but it is a question whether any radical change is indispensable. All that is practically wanted might be attained by all the corporations raising the standard of their examinations to a uniform level which would obviate any downward competition between them and at the same time would exclude from the profession, if possible at the entrance examination, those who are not thoroughly equal to its responsibilities, so that none but the fittest could get their names on to the Medical Register.

THE PLACE OF THE PROFESSION: ITS PROSPECTS AND ITS REWARDS.

The service to the individual and to the State.—I have dwelt upon the altruism of the profession in its constant war against disease. The character of the personal service rendered by its individual members is well known to us. It is often true, and not alone on the field of battle, that life itself

is offered in the hope of saving life. There is little wonder that our profession should supply a shorter average of life than any other. Alone, the medical man is never allowed to be ill and he is singular in continuing to work whilst ill. No other profession claims that its labour shall be carried on at night and on holidays and to this must be added the constant exposure to infection and to other risks. But it is not sufficiently realised that the work done by the profession in saving the life of individuals and in checking the spread of disease is a direct service and a direct gain to the State. Has its practical value been fully recognised? We enjoy, it is true, and are thankful for the favour and the protection of the State. But beyond charters and privileges such as are granted to great commercial associations working for their own profit and only indirectly for their fellow creatures and for the State little has been bestowed upon us. On the basis of this service we might as a profession be in a position to treat with the State. This was the custom with the ancient guilds. No such bargain has ever been submitted from our side. Men of medicine have parted with their "mystery" without even thinking of an equivalent which has not been proposed from the other side in the shape of any practical recognition. Whilst other professions act on the principle "Do ut des" the fruits of medical science which prosper our days of peace and ensure the success of our wars are a free gift to the State. And that profession which alone shares with the Church the direct care for the welfare of the community has little share in its honours.

The deserts of the profession.—Yet having regard to the value which the individual sets upon his own life, to the actual value which lives saved represent to the State and to the untold boon to humanity in the alleviation of suffering it is difficult to see what recognition could be adequate. In a younger world with such a record healers of the sick would have walked as gods among men. From the individual the medical attendant receives an honorarium only in acknowledgment of a debt which cannot be entirely paid. By the State this acknowledgment of debt is hardly made and the honorarium is scantily bestowed though statesmen admit that without a healthy population there can be no national greatness.

The place of medicine among professions. — Precedence between professions and their social status are regulated by custom and there is no desire among us to disturb these ancient traditions. It may be said of all professions that they have risen in dignity. In the case of medicine the rise in worth as estimated in vastly increased knowledge, in usefulness as judged from the amount of human life saved, and in influence as regards the practical reforms administered by the State under our guidance has been out of all proportion to any position which it has ever held. The end of the last century witnessed a revolution in France which brought to the front tumultuously the social layers by whom the chief work of the world had been carried on without recognition. Less turbulently but with unfaltering step medicine has been marching towards its proper place in the front rank of the professions. What is the medical profession in the State? Nothing. What should it be? The chief and most important influence. For it was truly said: "Sanitas sanitatum, omnia sanitas."

The reward: its deeds and its dignity.—The power silently wielded by our profession is ever increasing and must give it importance and ultimately a foremost position. For the present its reward lies in the consciousness of this fact, imperfectly realised by our fellow men; and also in its dignity, in its intellectual work, and in a knowledge that its ministrations are indispensable as well as beneficent. In this isolation and this consciousness of power there is a superiority. The profession if a self-made aristocracy of usefulness whose distinction is not exclusiveness but the widest sympathy, whose strength is not privilege but prodigal self-sacrifice. Let the estimate placed upon it by its members never fall beneath its great aims and achievements. Our part as its representatives is one of increasing loyalty and self-dignity. This duty lies before each of us and its fruits are within our own grasp as may be seen by the success of combined action of the profession whenever it has been attempted. In addition to Pandora's legacy to our race there is for our profession a large inheritance of charity as well as of faith in the progress of humanity and in its own destinies. These things that we see and know cannot much longer escape the notice of the people and of their leaders.

NOTES OF THREE CASES OF PERFORATED GASTRIC ULCER SHOWING COMPLICATIONS AFTER OPERATION,

ONE CASE ILLUSTRATING A NEW SURGICAL METHOD OF TREATING SEVERE RECURRENT HÆMORRHAGE FROM GASTRIC ULCERS.[1]

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THE chief or primary complications of gastric ulcers—viz., perforation, hæmorrhage, and subphrenic abscess—are also met with as complications following an apparently successful operation for the cure of perforated ulcers. After reading the notes of the cases I will offer for consideration in the course of my subsequent remarks two suggestions which have occurred to me—one for the treatment of severe recurrent hæmorrhage from gastric ulcers and the other for the adoption of additional precautions against the formation of retro-gastric subphrenic abscess after operation.

CASE 1.—The patient, a female, aged thirty-seven years, was suddenly seized whilst attending to her duties on May 24th, 1895, with severe abdominal pains. I saw her five hours later and found her somewhat recovered from collapse but with signs of general peritonitis. She said that she had suffered for a long time from indigestion and pain in the pit of the stomach. Vomiting, not especially soon after food, but at any time, began some weeks earlier. On opening the abdomen in the epigastric region a large abscess containing foul-smelling pus was found leading directly into the stomach. The wall of the abscess was also deficient at the lower part and it was evident that here there was a rupture into the general peritoneal cavity. A second incision was made above the pubes and both the abscess cavity and the general peritoneal cavity were thoroughly flushed. The abscess cavity was lightly packed with gauze drain and a drainage-tube was inserted above the pubes. The patient did well at first, the peritonitis subsiding, and at the end of seven days she was removed to the Sussex County Hospital where she remained for a fortnight longer, but the epigastric wound showed no signs of healing. All fluids which were swallowed ran out directly through the wound which became septic and the patient died on June 13th from exhaustion, three weeks from the date of rupture. I had left the town for a holiday on June 1st and I learnt the final details of the case on my return. The necropsy showed, as I was informed, the stomach to be contracted and adherent to the adjacent viscera, but there was no malignant disease. The patient died worn out with hectic and inability to retain food. I have since thought that I might have prolonged her life by performing the operation which I will describe later.

CASE 2.—The patient was a female, aged twenty-two years. She was admitted into the Sussex County Hospital on April 1st, 1898, with symptoms of ruptured gastric ulcer. She had suffered for about five years from anæmia and from pain after food referred chiefly to the cardiac end of the stomach. For some months she had been subject to vomiting after food but there was never any blood. On March 31st, when running upstairs before dinner, she was seized suddenly with severe pain in the left side of the abdomen and epigastrium. On admission, twenty-four hours later, she was still somewhat collapsed; the abdomen was distended and hard but there was no liver dulness. On opening the abdomen gas escaped but no stomach contents were visible in the peritoneal cavity. The stomach was empty, showing on the anterior surface of the lesser curvature close to the cardiac end an indurated surface about 3 cm. in diameter in the centre of which was a tear about 1 cm. in length. The stomach walls were folded over the induration and were stitched together by one row of Lembert's sutures. The peritoneal cavity was washed out with saline fluid and a gauze drain was left in the epigastric wound. The patient did well in spite of frequent vomiting during the first twenty-four hours till April 12th when the temperature rose to 101° F. There was no rigor and no pain and the respirations

[1] A paper read before the Brighton and Sussex Medico-Chirurgical Society on Nov. 3rd, 1898, with paragraphs added referring to cases simulating perforations and those on the technique of the operations.

were 32 per minute. Examination of the chest showed skodaic resonance over the left infra-clavicular region and dulness on the same side posteriorly over the base of the left lung. There was evidently a rapidly formed pleural effusion. On April 16th, the temperature being then 102°, the left pleural cavity was aspirated and 400 c.c. of clear fluid were withdrawn. After this the patient gradually improved and was discharged well with no pain after food on July 3rd. When seen two months later she had gained flesh and was well in all respects and showed no evidences of phthisis. The object in tapping the left chest at such an early date was to determine as soon as possible whether the fluid was purulent or not; if purulent there would have been stronger reason to suspect some irritation of the peritoneum, perhaps that of the lesser cavity which lies in relation with the posterior portion of the under surface of the diaphragm on the left side.

CASE 3.—The patient, a female, aged twenty-four years, was admitted into the Sussex County Hospital on Feb. 22nd, 1898, with symptoms of perforated gastric ulcer of four hours' duration. (She had been in the hospital for a few days in December, 1897, complaining of pain after food and nausea and she was then discharged feeling better.) For some time past the pain after food had been acute, coming on from half an hour to an hour after a meal, and was relieved by vomiting; there was also pain at night when the stomach was empty which was referred to the lower part of the sternum. There was no hæmatemesis. On Feb. 22nd after taking some bovril she was seized at once with acute pain in the epigastrium and with nausea but there was no vomiting. The patient was operated upon at 8.30 P.M., six and a half hours after the commencement of the symptoms. Perforation was found on the anterior surface of the lesser curvature about 2½ cm. from the pylorus. The peritoneal cavity contained gaseous and other contents of the stomach. The ulcer was closed by one row of Lembert's sutures and the peritoneal cavity was flushed with saline fluid and drained through the second opening above the pubes. Rectal feeding was followed for three days; then in addition small quantities of fluid food were given by the mouth, but as pain and flatulence followed feedig by the rectum only was resumed till Feb. 28th. On March 1st careful feeding with small quantities of milk and barley water by the mouth was again tried. There was no pain or flatulence. The patient passed a large, loose, black stool on the night of the 2nd, another soon after with a returned nutrient enema, and a third on the next morning. Melæna was absent on the 4th but it returned on the 5th. The patient was blanched and restless; nutrient injections were not retained and the rectum was full of black clot. Feeding by the mouth being out of the question and as it seemed too hazardous to trust to drugs to check the bleeding I decided to open the small intestine with the view of feeding the patient whilst resting the stomach. An incision through the abdominal muscles was made near the right semilunar line in order to avoid the sites of the epigastric and pubic incisions not yet healed and a thick-walled portion of small intestine, ascertained by drawing it out of the abdomen to be distant at least a metre from the ileo-cæcal valve and thought to be a good deal further, was opened and a small rubber tube was inserted; the intestine was fixed to the parietes. On the same evening the patient being very weak and restless after recovering from the anæsthetic was fed with 500 c.c. of peptonised milk through a tube in the intestine. A morphia suppository was administered per rectum. On the 6th the patient was much better. 500 c.c. of peptonised milk were given through the tube every four hours. She had a rigor during the night. On the morning of the 8th the temperature was 104° F. and the left parotid was swollen and tender; 25 c.c. of brandy were added occasionally to the food and 0·118 c.c. of solution of strychnine was given at each feeding. The morphia suppository was continued and a fomentation was applied to the parotid. On the 9th the patient was better. The temperature was 98·8° and the parotid was less swollen and not so painful. On the 12th feeding by the mouth in small quantities was re-commenced and feeding through the tube in the intestine was continued. The patient was beginning to gain flesh and she had no pain. On the 22nd she was fed entirely by the mouth; from this date onwards convalescence continued, but as the wound in the intestine left a small sinus which leaked this was closed by operation on July 6th and she left the hospital quite well with no pain after food on Sept. 9th. When seen six weeks later she was perfectly well.

Hæmorrhage after operation in any case similar to Case 3, excluding other causes of hæmorrhage, may proceed from the ulcer which perforated and has been closed; from injury during the operation to a previously healthy portion of the stomach; or from a second ulcer coexistent. Statistics [2] tell us that about 3 per cent. of cases of gastric ulcer die from hæmorrhage and that about 6½ per cent. of all cases perforate. Of those ulcers which perforate 36 per cent. are on the lesser curvature, 29 per cent. on the anterior surface, 9 per cent. on the pyloric end, 6 per cent. on the posterior surface, 5 per cent. on the cardiac end, and 2 per cent. on the middle of the stomach. In 13 per cent. there were two ulcers opposite to each other on the anterior and posterior surfaces of the stomach, the former being the site of the perforation while the latter was in most instances firmly adherent to the pancreas.

The above figures were collected prior to the time when operations for perforation were first performed. Quoting from more recent figures of gastric ulcers operated on at St. Mary's Hospital [3] Dr. Walter Broadbent tells us that out of 18 cases operated upon 3 cases had ulcers on the posterior wall as well, with their bases formed by the pancreas; 2 others had an ulcer on the posterior wall only through the mucous membrane; and in 1 case a perforation occurred in an ulcer on the posterior surface after the anterior one had been sewn up. In this list of all the cases which were operated upon one-third of the number had double ulcers. But whether a second ulcer is present or not, if grave symptoms such as perforation or hæmorrhage arise necessity for treatment is urgent whatever be the cause.

If there be a second perforation, surgically speaking, the abdomen can be reopened and the perforation closed with or without a gastro-jejunostomy. Before deciding to interfere surgically at all it is well to bear in mind the details of two cases in which serious symptoms of perforation are recorded, yet in which no second perforation was found. One of these cases [4] terminated fatally; no perforation existed and death was attributed to heart failure; in the other [5] the abdomen was reopened and the patient recovered. In each case the original ulcer was on the posterior wall of the stomach and the proximity of the solar plexus to the necessary adhesions may help to explain the symptoms.

Passing to the complication of hæmorrhage it will be remembered that in Case 3 life was threatened by profuse gastric hæmorrhage a few days after operation. Nutrient enemata could no longer be retained; the rectum was filled with clots and the small intestines (as proved subsequently during the second operation) also contained a quantity of black blood. Treatment by drugs seemed hopeless; nutriment was urgently required. Before deciding upon the best surgical proceeding in a case such as this after operation it may be well to consider the recently suggested surgical treatment performed in a few cases of hæmorrhage following gastric ulcer which have not perforated and have not therefore been subjected to operation. Mr. W. Rose, [6] writing on this subject in 1896, says: "Operations for hæmorrhage have not been frequent, indeed there are only two successful cases on record. Mikulicz performed one fatal operation and the two successful cases have occurred in the practice of Kuster." Dr. H. P. Hawkins [7] mentions Kuster as quoting four cases of excision of gastric ulcer where life was threatened by hæmorrhage, of which three were successful. These are the only cases of operation for non-perforated gastric ulcer accompanied by hæmorrhage which I have hitherto been able to find. Dr. Hawkins [8] quotes Leube as holding the opinion that operation should be performed not only where there are small and repeated hæmorrhages but also in a profuse hæmorrhage which is repeated. Leube reckons that in about 4 per cent. of all cases of non-perforated gastric ulcer surgical intervention is indicated.

The operations hitherto suggested or performed in non-perforated ulcer consist in opening the stomach and excising or cauterising the ulcer with or without pylorectomy and gastro-jejunostomy. I have found no record of any surgical measure for dealing with hæmorrhage following operation for perforated ulcer, but I submit that (*a*) temporary enterostomy such as was performed in Case 3 and might well

[2] Brinton: Ulcer of the Stomach.
[3] Brit. Med. Jour., vol. ii., 1897, p. 544.
[4] Ibid., vol. ii., 1898, p. 1407.
[5] THE LANCET, March 2nd, 1895.
[6] Year-book of Treatment, 1896, p. 215.
[7] Ibid., p. 88. [8] Ibid., p. 86.

have been performed in Case 1 has this advantage, that when life is threatened by hæmorrhage from gastric ulcers, whether perforate or non-perforate, though enterostomy be not of itself a faultless or a curative measure, it offers nevertheless an alternative between a comparatively slight operation and a severe one and may enable us to sustain life during the critical period by feeding the patient while the stomach rests. The operation may be performed in non-perforated cases somewhat as follows. The abdominal incision is made with the centre level with the umbilicus or a little lower, 3 cm. from the middle line, 10 cm. in length, more or less, through the left rectus muscle. Push up the great omentum and the transverse colon. Slide the fingers along the lower surface of the transverse meso-colon to the spinal column and feel for the ligament of Treitz which is the guide to the commencement of the jejunum. Open the bowel about 1 metre or less from its commencement, avoiding risk of strangulation from taking a small loop, with a small sharp tenotomy knife so that a good sized Jacques catheter may be tightly grasped without leakage. Care should be taken to avoid a sharp spur by stitching the bowel above and below not too close to the opening or food may escape when feeding by the mouth is commenced. Adequate room should be allowed for the transverse colon in its normal position. The catheter passed into the rectal end of the jejunum may be stitched to the skin as well as to the Keith's dressing to avoid risk of displacement.

Reverting to cases already the subjects of operation such as Case 1 where food passed out immediately from the stomach through a gastro-cutaneous fistula or Case 3 where hæmorrhage occurred, few surgeons could confidently hope that patients in similar conditions would survive a second operation such as excision of the ulcer with or without gastro-jejunostomy. For these a temporary enterostomy as performed in Case 3 appears to be a reasonable surgical alternative to adopt. In such cases, however, choice of the site of incision may be limited owing to the presence of unhealed or septic wounds in the middle line. Where adhesions are absent at the site of incision a thick-walled portion of small intestine should be drawn out to ascertain that the future opening be not much within 1 metre either of the ileo-cæcal valve or of the commencement of the jejunum. If dense adhesions be present any guide (whether to the relative part of the small intestine to be opened or to its gastric or rectal extremity) might be entirely absent without employment of injudicious interference. The operator might then have to be content to open the most suitable portion of small gut presenting and to pass the tube a short distance only within its lumen. Under whatsoever condition the operation has been performed at a subsequent period the bowel should be released from its abdominal adhesions if pregnancy is likely to occur.

I come now to the consideration of retro-gastric subphrenic abscess as a complication following the operation, suggested but happily absent in Case 2. Some time ago the question was raised in this society[9] whether in cases where the cavity of the stomach could not be examined through the rent in a perforated ulcer on the anterior wall it might be well as a safeguard to ascertain the condition of the posterior wall through an opening in the omentum. I would go further than this and say that in all operations for perforated ulcer the lesser cavity of the peritoneum should be opened at the time of operation and for two important reasons. The first is, as suggested, for ascertaining the condition of the posterior surface of the stomach, because if we find that there is decided evidence of disease here, especially if implicating the pyloric end, after closing any ulcer we should more often go on to perform a gastro-jejunostomy than be content with only closing the ulcer. The second reason is that only by opening the lesser cavity and passing in the nozzle of the irrigator can this sac of the peritoneum be thoroughly flushed. The lesser cavity is well known to be a favourite site for subphrenic abscess when an ulcer affects the posterior wall of the stomach, but in the last fatal operation for perforated gastric ulcer which I saw death was due to an abscess in this situation, though there was only a single ulcer on the anterior wall which had perforated. Pus, as shown at the necropsy, had formed here, the foramen of Winslow was closed by adhesions; no recent general peritonitis existed, but both lungs were affected with extensive suppurative pleuro-pneumonia which was the immediate cause of death. The perforating ulcer on the anterior wall which had been closed by the operation was watertight and there was no other ulcer in the stomach, as I have said, to produce the subphrenic abscess. There can be no reasonable doubt, I think, that particles of the gastric contents had found their way from the greater cavity into the lesser, either before the operation or at the time of it, forced through the foramen of Winslow by the irrigating fluid.

Do not consider that I wish for a moment to advocate sponging in preference to irrigation for cleansing the peritoneum. I advocate irrigation but I contend that although the neglect to cleanse the lesser peritoneal cavity after operation for gastric ulcers has been often unattended with bad results this is a good fortune which should not be relied upon and that the lesser cavity of the peritoneum should be flushed as thoroughly as is the greater. Why has no notice been taken hitherto of the condition of the lesser cavity? Perhaps we may explain the omission in this way—that in many cases of general peritonitis following appendicitis, salpingitis, or other causes, effusion of pus or other septic fluid occurs in the lower part of the abdomen or about the pelvis and is not of great quantity; general peritonitis begins and the foramen of Winslow is closed by adhesions, thus shutting off the lesser cavity, just as we find in the converse condition when gradual leakage into the lesser cavity follows a gastric ulcer on the posterior wall general peritonitis does not ensue because the foramen closes. But in the case of a perforated anterior gastric ulcer the gastric contents have only to trickle round the right free border of the lesser omentum and both the greater and the lesser peritoneal cavities are practically simultaneously soiled. The lesser cavity of the peritoneum can be opened either through the layers of the great omentum or of the transverse meso-colon, preferably through the former. Division of the lesser omentum in part, though desirable sometimes when dealing with ulcers on the lesser curvature, does not give such convenient access to the lesser cavity.

Brighton.

[9] Proceedings of the Brighton and Sussex Medico-Chirurgical Society, 1897-98. See Mr. T. Jenner Verrall's Clinical Note, THE LANCET, Dec. 17th, 1898.

TWO CASES OF CÆSAREAN SECTION.

BY JAMES BRAITHWAITE, M.D. LOND., M.R.C.S. ENG.,
OBSTETRIC PHYSICIAN AND SURGEON TO THE LEEDS GENERAL INFIRMARY; EDITOR OF THE "RETROSPECT OF MEDICINE," ETC.

CASE 1.—In May, 1897, I was called upon to operate in a case of pregnancy at full term in which the pelvis was blocked by an ovarian tumour so that delivery was impossible. Labour was threatening but it had not actually commenced. When the peritoneal cavity was opened the uterus was seen to be of a darkish blue colour, probably owing to the placenta having its attachment anteriorly. The uterus was rapidly opened by a scalpel which at the same time divided the placenta; the incision, however, was completed by the use of strong scissors. The hæmorrhage was very great but was controlled by pressure with the fingers by Mr. Knaggs who ably assisted me both in this case and in the second case and to whom I must tender my grateful thanks. The child was brought out by the head and the membranes and placenta were brought out immediately afterwards. The time from the commencement of the incision to the complete emptying of the uterus would not be more than five minutes. The finger was passed through the cervical canal which was found to be sufficiently open for drainage purposes. A sponge wrung out of hot boric lotion was put into the uterine cavity and one or two very large ones (also hot) were placed around and pressed upon the uterus which was now lifted out through the abdominal wound. No elastic ligature was used around the neck of the uterus. The wound in the uterine wall was closed by silkworm-gut sutures placed deeply at ½ in. intervals. These just missed the internal surface of the uterus. As it was noticed that the peritoneum was extremely loose and moveable owing to its not contracting in the same way that a muscular organ is capable of doing it was sewn over by a continuous catgut ligature. The original silkworm-gut ligatures were thus completely buried. The ovarian tumour was then removed in the ordinary way. The child was living and I hear that it is at present in good health. The mother made an uninterrupted recovery.

CASE 2.—This patient I saw first with her medical attendant, Mr. Spong of Leeds, at her own home, but she

was removed to the Leeds General Infirmary soon afterwards as she had had threatenings of labour. As in the previous case the pelvis was blocked with an ovarian tumour which so far as could be made out did not extend upwards into the abdomen. The cervix which was high up above the pubes could only be reached with difficulty. The fundus uteri was felt about 3 in. above the umbilicus and the patient was probably about seven months pregnant. She was kept in bed or sitting up in the ward for six weeks as there were no urgent symptoms of any kind and I thought it better to wait till the child was more likely to live. It was found, however, that the ovarian tumour was growing more quickly than the uterus and at the beginning of September, 1898, the upper edge could be felt above the fundus uteri. The pelvis, however, was completely blocked as before. It was therefore decided to operate at once. This was done on Sept. 6th. The operation closely resembled that described in Case 1 except that the placenta was attached to the upper and posterior part of the uterus and was not cut into by the incision. In this case as in the other a pair of very strong scissors was used to divide the uterine wall after it had been opened sufficiently by a scalpel to allow of this operation. I think this plan is better than a scalpel and director, as the uterus is more rapidly opened and the operator is less likely to injure the child. The child was found to present with its right shoulder and it was removed shoulder first. The placenta and membranes came out with it as the membranes accidentally caught on the child. The wound in this case was closed with 2 to the inch green chromic catgut. This catgut is very strong and I believe it is not absorbed so rapidly as the ordinary yellow catgut. In order to ensure proper adaptation of the sides of the wound the first suture was of course placed in the middle. The ovarian tumour was then removed. As in Case 1 I sewed the peritoneum over the uterine sutures. The patient made an uninterrupted recovery. The child, who was not quite at full term, unfortunately died in about twenty-four hours from atelectasis or non-expansion of the lungs.

It is difficult to make any remarks upon this operation which would be new as so much has been written upon the subject. It is, however, probably the most fascinating and interesting operation in surgery. The dangerous condition of the patient, the impossibility of relief in any other way, the certainty of death if it is not done when, as in such cases as these, delivery in any other way is impossible, and lastly the complete triumph over disaster by removal of the child in this way, together with the rapidity of the process, present to the mind a tragedy ending, however, in a complete and successful issue. The history and literature of the operation which is one of great antiquity is full of tragedies. For instance, in the year 1647 the operation was done by a bull which gored a woman eight months advanced in her sixth pregnancy. An abdominal wound was made from one sacro-iliac spine to the other. The intestines fell out between the thighs and the uterus was torn open. During the process of washing the intestines a living child came out through the wound in the uterus. The patient, however, recovered without a bad symptom and was out of bed in a month. There are at least 6 cases reported in which the patient did the operation upon herself and 5 of these resulted in recovery. Probably the most interesting of these cases is the following an account of which I abbreviate from THE LANCET of May 22nd, 1886, where it is related in full and attested by two medical men of Viterbo in Italy. A peasant woman aged twenty-three years and unmarried was pregnant at full term. Having been much annoyed by the remarks which were made as to her condition she determined to end the matter summarily. With a common kitchen-knife, not too sharp, she opened her abdomen on the right side of the umbilicus and then cut into the uterus. She drew out the arm of the child and cut it off. She then pulled out the head and amputated it. She then was able to remove the rest of the body and also the placenta and membranes. She bound herself tightly round with a broad band, and having hidden the fœtus in a straw mattress she dressed and walked into Viterbo which was rather less than a mile from her house to visit a sister, with whom she breakfasted on bread and coffee and a cup of broth. She then walked about the town for some time in order, as she stated, to show herself and to put an end to the current talk about her pregnancy, and returned home at 10 A.M., having been on her feet for about five hours. Some time after this, when at home, she vomited and fainted. One of the two medical men whose names are attached to the narrative was sent for and he found nearly all the intestines outside the body, and he states that he believed them to have been outside for at least six hours. With the assistance of his colleague the intestines were carefully washed and replaced, a drainage-tube was put in and the abdominal wound was closed. It is not stated whether sutures were put into the uterine wound or not. The wound healed and the patient rapidly recovered. In a previous comment in an annotation in THE LANCET of May 8th, 1886, upon this incident, as reported in *La Gazzetta degli Ospedali*, it was remarked that the "fearless bravery" of the old Romans evidently still survives.

What has struck me more than anything else is the safety of the operation provided the patient is in a condition to bear it. Beyond exhaustion there is really nothing for her to die from except it be hæmorrhage or sepsis. The hæmorrhage is perfectly under control by nipping and at the same time everting the edges of the wound by the fingers. This is more easy because the bleeding does not come from the whole extent of the wound but from two or three points only. It is venous hæmorrhage at very low pressure and is arrested quite easily. Of course it is completely stopped when the wound is brought together. I think it is an improvement in the technique of the operation to close the upper end of the incision the last and just before putting in the last two sutures to syringe the uterus well out into the vagina so as to ensure that it is free from clots of blood. It is very important to place the sutures near together and not, as recommended by Saenger, at intervals of an inch or so with superficial sutures between. If green chromic catgut is used in tying the knots I think it is also important to pass the end through the loop twice in making the first half of the knot. A knot so made with catgut is secure, otherwise it is not secure. There was an interesting case recorded in the year 1885 in which the sutures in the uterus gave way from vomiting and a clot was forced from the uterus into the peritoneal cavity. Catgut was used but probably the knots were not made in the way mentioned. Active contraction of the uterus, it must be remembered, is not necessary to stop hæmorrhage as the condition known as retraction is sufficient. When a contracted womb relaxes it becomes in a state of retraction, in which condition hæmorrhage does not occur. It is only when the womb expands or opens that bleeding takes place.

It is a well-established rule that in ovarian tumour with pregnancy the tumour ought to be removed at once. Pregnancy by this plan will not be interfered with and will go on normally. It may be suggested that I ought to have followed this rule, but in neither case was it possible to do so as the pelvis was blocked by the tumour and the womb lay completely above and anterior to it. In the second case, as stated, towards the end it was found that the tumour extended higher behind the womb than was supposed, but when the abdomen was opened it could not be removed or even seen, as the womb lay entirely in front of it.

I have either actually attended, or seen in consultation, or been responsible for, between 11,000 and 12,000 cases of midwifery. This large number of cases is greatly accounted for by 600 cases a year on the average attended in the maternity department of the Leeds General Infirmary and it has only been necessary to do Cæsarean section twice. We have, however, escaped it in 3 cases by doing symphysiotomy when the conjugate diameter has been 2¾ in. or over. I am afraid, however, that even now craniotomy is done when symphysiotomy would suffice. This latter operation is very satisfactory, for of the 3 symphysiotomy cases all the mothers recovered, and 2 of the children lived.

Leeds.

THE "BLIND FLY" AND THE LOCUST IN THE EVOLUTION OF THE MALARIAL PARASITE.

BY ARTHUR DUNLEY-OWEN, B.Sc., M.R.C.S. ENG., L.R.C.P. LOND.,

SURGEON TO THE BRITISH SOUTH AFRICA COMPANY.

IN a paper on Malaria published in THE LANCET of Sept. 24th, 1898, I stated that I had made cultivations of the malarial parasite. My attention has been drawn to the following paragraph in Manson's "Tropical Diseases" page 2, "Hitherto all attempts to cultivate the parasite ..... have failed." I only obtained Dr. Manson's book in October, and

when I wrote my article my general knowledge of the subject was from "Fagge's Medicine." It is possible, therefore, that a brief description of the experiments which led me to contribute my notes to THE LANCET may prove of interest.

Rhodesian farmers have often told me that by keeping horses in during certain hours they prevented them from falling victims to "horse-sickness," and on investigating the subject I found, as I have mentioned before, that they were correct in their statements. This led me to inquire what there was in the herbage or the soil which could produce "horse-sickness" and I made microscopical examinations of dew, grass, and soil, but without any discovery. I then tried to make cultivations in the usual way on potato and with glucose gelatin, but again with no satisfactory result. On examining the blood of a horse suffering from "horse-sickness" I found the red blood corpuscles occupied by an amœboid body containing a black substance which I took to be melanin and also multitudes of sporules free in the blood serum. I examined the blood from 4 horses in this way and saw the amœboid bodies containing pigment and the free sporules in 3 cases. I did not, however, then find any crescentic bodies. This result being so similar to that which obtains in malarial blood in man I thought "horse-sickness" might be an analogous disease and with the hope of proving it I made the following experiments:—

A. "*Blind fly*."—I caught a number of that species of Tabanus which has a large grey-striped body, greenish-yellow eyes, and entirely transparent wings. This is locally termed the "blind fly" and it feeds on blood. I kept these in a cage of mosquito netting and at different times made the following investigations: 1. I examined several of the "flies" and found ?-curved bacilli in one case. 2. I allowed four of the "flies" to bite me during a malarial attack from which I suffered and examined them at intervals. (*a*) Two hours afterwards sporules and pigmented cells were to be found in the stomach contents. (*b*) In twelve hours pigmented cells were found in the stomach walls; and (*c*) on the fifth day while examining a third specimen I found deposits of pigment in the stomach walls and sporules and crescentic bodies in (?) lymph channels of the fly. 3. I allowed several "blind flies" to bite healthy horses but nothing abnormal was found in the contents of the stomachs. 4. I allowed others to feed on a horse suffering from "horse-sickness." The stomach contents of both the healthy horses and the "sick" horse showed sporules and pigmented cells. In one instance I found crescentic bodies.

B. *Locusts*.—I made the following experiments at different times with Acridium purpuriferum or the migratory locust: 1. I found flagellated bodies in the stomachs in 3 per cent. of locusts taken in early morning from the wet grass. 2. On keeping similar locusts for twelve hours I found sporules and crescentic bodies in the stomach walls in 1 case out of 50 which were examined. I considered these analogous to the malarial parasite because they were similar to acknowledged forms as seen in human malarial blood; but I dare say my conjectures are wrong.

C.—I injected rats with blood from a horse with "horse sickness" and produced rigors, elevation of temperature, and other signs of fever. On examining the blood of these rats I found amœboid bodies containing pigment and sporules, and in some cases in blood taken at a later period I saw many crescentic bodies. Other rats injected with blood from healthy horses showed only slight elevations of temperature, due, I take it, to the act of injection, and on examination their blood proved normal in every instance. Rats injected with the stomach contents of a "blind fly" which had been fed on my own blood showed the characteristic plasmodia in their blood five days afterwards. Rats injected with the "juice" of locusts caught in early morning showed symptoms of fever, but only once in 12 cases was I able to detect plasmodia in their blood.

I now see that I was in error in considering the crescentic bodies to be "bacilli"; I thought these were the active factors in true malaria and that the amœboid bodies were phagocytic in function.

Enkeldoorn, Rhodesia.

THE BOLTON AND DISTRICT ASSOCIATION OF COLLIERY SURGEONS.—This society has been successful in raising the remuneration for attendance upon accidents from 2*s*. 6*d*. per head per annum to 15*s*. per case per annum.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

NORTH-EASTERN HOSPITAL FOR CHILDREN.

A CASE OF INDURATIVE MEDIASTINO-PERICARDITIS IN A YOUNG INFANT.

(Under the care of Dr. J. H. SEQUEIRA.)

THE following case is an excellent example of a rare condition which has received but scanty recognition. The first case seems to have been described in 1854 by Griesinger and up to the present about twenty-five cases have been recorded. There is much uncertainty about their etiology though it is not improbable that many are associated with tubercle. It is possible also that some of these cases start from a septic mediastinitis. For the notes of the case we are indebted to Dr. J. Blumfeld, late senior resident medical officer.

A male infant, aged fifteen months, was admitted to the North-Eastern Hospital for Children on Oct. 1st, 1898, with the history that in August there had been an attack of bronchitis and in September swelling of the face and legs. The case was sent to hospital as one of meningitis owing to a peculiarity in the child's cry. On admission the infant was pale but otherwise apparently healthy; he cried constantly unless he was nursed but he did not appear to be in pain. The temperature was 99° F., the pulse was 80, regular, and of fair size, and the respirations were 20. The tongue was clean.

On examination of the chest the area of cardiac dulness was found to be enlarged upwards on the left side reaching to the upper border of the second intercostal space; it extended also beyond the middle line of the sternum except over the manubrium. The heart sounds were everywhere normal. There were no adventitious sounds or bronchial breathing and the movements of the chest were normal. The liver and spleen were not palpable below the ribs. There was no tenderness or rigidity of the abdomen and there was no evidence of fluid; the feet and legs felt cold and pitted slightly on pressure. The urine was of specific gravity 1015, acid, clear, and contained no albumin. The infant took his food and slept well. He usually sat up but while sleeping he lay on his back.

The patient's condition remained unchanged, except that on some days there was blueness of the lips and ears, until Nov. 3rd. There was then an obvious amount of fluid in the abdomen, the arms and legs were cold and blue, and the legs were considerably œdematous. There was no cardiac murmur and no albumin was present in the urine. Distension of the veins of the neck was noticed. On the 10th the edge of the liver was palpable 2½ in. below the costal arch and on the 23rd there was extreme ascites with much œdema of the abdominal wall. The urine contained phosphates and about one-eighth albumin. On the 30th there was much diarrhœa and on Dec. 2nd the infant died with all the symptoms of cardiac dilatation.

Necropsy.—A post-mortem examination was made fourteen hours after death. When the sternum was removed the mediastinal tissues were seen to be greatly thickened and adherent. The anterior mediastinal glands were enlarged and presented foci of caseation. The left lung was adherent to the chest-wall at the apex and over the posterior surface of the lower lobe was some thickened and adherent pleura. The pericardium was about three-quarters of an inch thick, fibrous, and adherent everywhere to the heart, and the fibrous tissue spread upwards around the great vessels. Firm adhesions united the pericardium with the thickened anterior and posterior mediastinal tissues. The left pleura was adherent to, but separable from, the pericardium. The valves of the heart were all healthy. Both ventricles were

dilated and hypertrophied. The pericardium was carefully examined for evidence of tubercle but with negative result. The abdomen contained four pints of ascitic fluid. The liver was large, "nutmeg," and on section fatty; the kidneys and spleen showed changes due to venous engorgement. The heart was shown at a meeting of the Pathological Society of London on Dec. 15th, 1896.

Remarks by Dr. BLUMFELD.—Cases of primary disease of the pericardium without valvular affection are not very common. For this reason and because of the unusually early age at which the disease appeared this case seems to be worthy of record. In 1895 Dr. Thomas Harris published a monograph containing accounts of his own cases of mediastino-pericarditis and all others recorded up till then. The youngest patient mentioned by him was a child two years of age so that the above case probably represents the earliest age at which the affection has as yet been known to be present. Dr. Harris distinguished three pathologically distinct classes of "chronic inflammatory conditions in relation to the pericardium and mediastinum." In the first of these there is "adherent pericardium with marked increase of fibrous tissue in the mediastinum not infrequently associated with caseous affection of the lymphatic glands of the mediastinum and with adhesion of the exterior of the pericardium to surrounding parts." These cases, following Kussmaul, he named indurative mediastino-pericarditis, and the above case seems to be an excellent illustration of the condition, occurring, however, at an unusually early age. Such cases are of interest clinically because of the difficulty in diagnosing the condition and pathologically because their etiology is so obscure. If they are regarded as rheumatic one is confronted with the absence of endocardial affection—an absence which, at any rate in children, is so rare in rheumatic heart affections as almost to negative the supposition. Moreover, besides the absence of endocarditis and of joint affection there is in many of these cases no history of any illness which could be regarded as an attack of acute pericarditis, the disease beginning insidiously and the first symptoms being those of the consequent cardiac dilatation or of dropsy. In the present case except an increased area of cardiac dulness and an occasional lividity of the extremities there was nothing for weeks to lead anyone to suspect any affection of the heart. Cases such as these differ on the one hand from cases of obviously tuberculous pericarditis with generally much other evidence of tubercle and on the other from the obviously rheumatic cases where there is endocarditis as well.

Medical Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.

THE third ordinary meeting of this society was held on Dec. 21st.

Professor CHIENE showed (1) a well-marked case of Coxa Vara occurring in a lad, sixteen years of age, said to have been a result of rickets, but much more likely to have been due to traumatism; and (2) Double Partial Dislocation of the Hip-joint occurring in a typically rachitic girl.

Dr. AFFLECK showed (1) two cases of Friedreich's Ataxia in brother and sister; and (2) an extremely well-marked case of Addison's Disease occurring in a young man, the mouth presenting so many dark patches that it resembled that of a dog. There was no pulmonary disease when he was first admitted to the infirmary, though there were some enlarged glands in the neck. Suprarenal gland extract was administered, but as alarming symptoms followed the treatment had to be stopped, after which he began to improve markedly and soon gained a stone in weight. His strength also improved remarkably. The pigmentation still remains as before however. In another earlier case which Dr. Affleck also treated by suprarenal gland extract similar collapse was noted and the patient ultimately died.

Mr. CAIRD showed:—1. A man, aged fifty-eight years, from whom he had removed a rectal carcinoma by a parasacral incision. The growth affected the anterior aspect of the rectum and the exploring finger could reach beyond it. An exploratory incision was first made in the middle line of the abdomen and the growth was then found to be perfectly localised. The operation for removal of the growth was done on Sept. 6th; the wound is now whole. The patient has no incontinence of fæces, has put on weight, and feels in perfect health. 2. A patient after Removal of the Appendix and of a Renal Calculus. This affection occurred in a young man, aged twenty-one years, who had suffered from repeated attacks of typhlitis along with lumbar pain. An incision was made in the abdominal wall and the appendix was found to enclose three masses of fæces which could not escape. It was also embedded in inflammatory lymph and was consequently removed. No improvement followed however; the lumbar pain was still severe and the urine contained albumin and red corpuscles, though there was no pain radiating to the bladder or the testes. The kidney was cut down upon from the lumbar region and a calculus of the size of the terminal phalanx was removed. Since the second operation the patient has been perfectly relieved.

Dr. MELVILLE DUNLOP showed (1) a child suffering from Congenital Double Athetosis due to Cerebral Atrophy; and (2) a boy in the Atrophic Stage of Pseudo-hypertrophic Paralysis.

Dr. JAMES exhibited:—1. A case of Scleroderma associated with Symptoms of Raynaud's Disease which was present in a man, aged thirty-four years. Fourteen months ago the right index finger became cold and numb and a small part sloughed off. The same happened with the other fingers. The left hand next became affected, also the feet, the nose, and the ears. Small sloughs also formed on these localities. The skin now became very hard, specially under the chin; that over the hands became so hard that he could scarcely move his fingers. The skin over the face, neck, and over the body generally became hide-bound. He had great difficulty in opening the jaw, protruding the tongue, or putting the head back. His spleen was enlarged and the thyroid diminished in size. Tactile impressions were not interfered with but those for temperature were. 2. A case of Angio-neurotic Œdema of the Tongue occurring in a girl.

In Dr. GIBSON'S absence Dr. GRAHAM BROWN showed (1) a woman suffering from Bulbar Paralysis; and (2) a man exhibiting signs of Pseudo-bulbar Paralysis.

Dr. JOHN THOMSON showed a child with Hemiatrophy of the Tongue.

Dr. GEORGE ELDER showed: 1. A boy, aged six years, who showed Congenital Hemiatrophy of the Face with Malformation of the Ear. The atrophy affected not only the lower but the upper part of the face as well. 2. A woman, aged thirty-four years, with Senile Chorea. Four years ago she had a fall and sustained a Colles's fracture of the left arm. Previously to this her health had been perfect. Movements began to show themselves in the right hand after the accident.

Dr. W. ALLAN JAMIESON showed: 1. A drawing from a case of Urticaria Pigmentosa occurring in a child a year old. 2. A Papulo-squamous Eruption, apparently Syphilitic, affecting the Palms, in a man, aged forty-six years. 3. A case of Psorospermosis Follicularis Vegetans (Darier's disease) in a boy, aged eleven years. The disease began a year ago as a small spot on the outer side of the arm and gradually spread. There were large fungating masses on the arm, thigh, and face. In its early stage it appeared as small papules resembling molluscum or lichen planus. The hypertrophy was seen chiefly about the hair follicles. The psorosperms found by Darier in this disease were absent in the present case. 4. The result of treatment in a case of Tylosis which was shown at the November meeting. 5. Case of Elephantiasis in a woman, aged forty-three years. Six years ago the left leg began to swell at the ankle. The swelling spread upwards towards the thigh and then the right leg was affected similarly. The features which the legs presented were those of elephantiasis. There were nodular prominences on the skin and dilatation of the lymphatic tissues. The filaria nocturnans had been found in the blood of patients in this country. The blood in this patient was carefully examined after 8 P.M. but no filaria were found.

Dr. HODSDON showed a girl, aged seventeen years, from whom he had removed a large Plexiform Neuromatous Tumour from the Right Axilla. The growth had lasted about nine years and was divided into lobules. On operation it was found to be adherent to the periosteum and the median nerve passed through the centre of the tumour. Several other nodules were present in the sheaths of the nerves and these were shelled out. Other neuromatous

growths were present in other parts of her body—as, for example, in the right palm. Several other spots were present in the skin.

The following specimens were also exhibited:—

Mr. WALLACE: (1) A Renal Calculus; (2) Kidneys with Calculi *in situ*; (3) Fibro-adenoma removed from the Prostate; (4) Portions of Prostate removed from 3 Cases by Suprapubic Cystotomy; (5) 4 Kidneys (3 tuberculous and 1 carcinomatous) removed by operation; (6) Dermoid Cyst from the Floor of the Mouth; (7) a Biliary Cyst removed by Cholecystotomy; and (8) Microscopic Specimens of Tumours and of Prostate.

Dr. LOGAN TURNER: A Skull showing unusual Development of Frontal Sinuses.

Dr. DOWDEN: (1) Specimen of Plexiform Neuroma; (2) Microscopic sections of the same; and (3) Specimens of Hydatids.

Mr. CATHCART: (1) Abdominal Aneurysm which caused difficulties in Diagnosis; and (2) Multiple Abscesses in the Brain of a man convalescent from empyema treated by operation.

Mr. CAIRD: Preparations and Drawing from an unsuccessful case of Enterectomy and Suture for Carcinoma.

Dr. WILLIAM ELDER: (1) The Heart and Intestine from a case of Dysentery with Ulcerative Endocarditis; (2) Brain showing Hæmorrhage into the Occipital Lobe; and (3) Brain from a case of Word Blindness; the area of softening involved the supra-marginal convolution and the angular gyrus, extending as far inwards as the posterior horn of the left lateral ventricle.

Mr. CATHCART: Improvements in the Microtome.

Mr. CAIRD: Needle-case for Sterilising Needles and Sutures.

EDINBURGH OBSTETRICAL SOCIETY.

Exhibition of Specimens.—Chronic Inversion of the Uterus.—Pelvi-abdominal Disease.—Ectopic Pregnancy.

A MEETING of this society was held on Dec. 14th, Dr. HALLIDAY CROOM, President, being in the chair.

The following specimens were exhibited:—

Dr. BREWIS: (1) An Ovarian Tumour and a Calcified Fibroid Tumour removed from a patient aged seventy-four years; (2) a Five Months Pregnant Uterus removed for Cancer of the Cervix; and (3) Specimens from Two Cases of Hysterectomy.

Dr. J. W. BALLANTYNE: (1) Frozen Sections of a Fœtus hardened in Formol; (2) Multilocular Ovarian Cyst; (3) Vulvar Epithelioma removed by the Thermo-cautery (no recurrence); (4) Twin Fœtus (and Placenta) showing the First Stage of Sympodia; and (5) Secundines from Cases of Placenta Prævia.

Dr. HAULTAIN: A Uterus successfully removed by Vaginal Hysterectomy for Deciduoma Malignum.

The PRESIDENT: (1) A Missed Abortion; (2) an Ovarian Tumour complicating Pregnancy; and (3) a Parovarian Cyst.

Dr. J. W. STRUTHERS read notes of a case of Chronic Inversion of the Uterus replaced by Manipulation after Posterior Colpotomy had been performed. The patient was thirty-eight years of age and when admitted to the hospital was suffering from menorrhagia and metrorrhagia. Nineteen months previously she had been delivered of her eighth child. Labour was precipitate, the child being born on the floor. A medical man who was sent for removed the placenta without any difficulty and told the patient that her womb had come down. There was no shock or excessive hæmorrhage after the labour or during the puerperium. On admission a smooth, firm body of about the size of a hen's egg was found projecting through the cervix which was found to constrict the tumour slightly to the cervix; the diameter was about 1 in., lower down at its widest part it was about 1½ in. No body of the uterus could be felt on bimanual examination. Attempts were made to reduce it under chloroform by hand and by Aveling's repositor but without result. Slow pressure by the repositor was also tried but failed. The vagina was douched and packed with iodoform gauze for eight days and then Dr. Berry Hart operated by incising the posterior wall of the vagina for 1½ in. Two fingers were introduced through this and passed down into the infundibulum uteri. No adhesions were found. The fingers of the right hand manipulated the body of the uterus and the left fingers fixed the uterus and also kept the cervix stretched as contraction otherwise prevented the reposition. This gradually effected the replacement. A silk stitch was inserted through the lips of the cervix to prevent any tendency to recurrence and the vaginal incision was also united with silk. The patient did well.

Dr. HAULTAIN gave a Retrospect of a First Series of 110 Abdominal Sections for Pelvi-Abdominal Disease with 2 deaths. The table included 35 ovariotomies with no deaths; their ages varied from twenty-one to eighty-one years. The largest tumour weighed 83 lb. and after recovery the patient's weight was 84 lb., only 1 lb. more than the tumour. Of simple pedunculated cysts there were 18 unilateral and 3 bilateral; of simple sessile cysts 3 were abdominal and 4 were sub-peritoneal pelvic. There were 2 bilateral papillomata and 1 unilateral; also 2 fibromata, 1 cöphoroma, and 1 dermoid. With 2 of the solid tumours of the ovary ascites was present; with the cellular cöphoroma no peritoneal effusion was present. The presence of ascitic fluid with these solid tumours of the ovary was a matter of considerable interest and was difficult to account for especially when one considered that similar tumours of the uterus were not equally complicated. It was possibly due to the fact that the uterine fibroids obtained their nutriment from their capsule in which the inoculation was at all times easy, while the solid ovarian was nourished entirely by means of vessels which entered within a limited area and ramified through its structure. It would thus be evident that in dense fibrous growths the blood-return would become gradually impeded and a serous intra-peritoneal effusion result. As they were often of comparatively small size and of slow growth they would often remain undetected were it not for the accompanying ascites. The fungating papillomata were associated with extensive ascites; there had been no recurrence after removal in one of these patients, in this case no evidence of infection of the peritoneum could be found. Dr. Haultain's list of operations included 2 broad ligaments cysts and 3 hysterectomies. In the latter case the stump was treated by the intra-peritoneal method after ligature of the uterine arteries. There were also 3 myomectomies. In 2 patients there were mixed tumours: 1 had an ovarian tumour on the left side and a broad ligament cyst on the right; the other patient had a large ovarian cyst and a parovarian on the right side, numerous fibro-myomata of the uterus, and a large broad ligament cyst on the left. Extra-uterine gestation occurred in 5 cases of the series. 3 of these showed that the source of the bleeding was through the patent abdominal extremity of the tube. From a close examination of the specimens after removal it would seem that in the majority of the cases separation of the ovum with necessary bleeding was the primary factor in the so-called rupture. This bleeding might take place through the ostium and also might be the source of the irregular uterine discharge with which ectopic gestation was so constantly associated at the time of so-called rupture. One of the extra-uterine operations was rendered very difficult by the remains of an old appendicitis. Dr. Haultain performed ventro-fixation five times, twice for enlarged, congested, and fixed retroflexed uteri which gave rise to marked symptoms unrelieved by other treatment. In 2 cases of prolapse the result was satisfactory; in a third a secondary colporrhaphy had to be performed to rectify a pronounced rectocele. In performing the operation he stripped off the parietal peritoneum from the edges of the abdominal wound and fixed the fundus to the extra-peritoneal tissue by means of silkworm gut sutures which included the skin and recti muscles as well as penetrated the anterior uterine wall. The Porro-Cæsarean operation was performed on one patient. She was a dwarf and in the second stage of labour. The pains were violent and uncontrolled by anæsthesia. The conjugata vera measured 2 in. The stump was treated extra-peritoneally and was secured by the elastic tube. The child was saved and the mother recovered. Suprapubic cystotomy was performed in 3 cases for new growths in the bladder, all papillomatous and freely hæmorrhagic. The ages of the patients were seventeen, fifty-one, and fifty-two years. The suprapubic method was preferable to urethral dilatation or vaginal cystotomy. Urethral drainage was more comfortable to the patient than through the wound. There were 10 cases of exploratory incision with 1 death. These included operations for malignant disease of the peritoneum, tuberculous infiltration for adherent ovaries, to fix up prolapsed ovaries, and to release an adherent pedicle. The fatal case was an

exploratory incision on a post-uterine tumour which was causing pressure symptoms. It was found to be a sub-serous cervical fibroid and as the vaginal route for its removal seemed preferable the abdominal wound was closed. The patient succumbed from acute septic peritonitis on the third day before the second operation was undertaken. The appendages were removed in 41 cases. 2 of these were for dysmenorrhœa, all other treatment proving of no avail. This operation was also undertaken on a patient with a monthly mental aberration that she was harbouring a man inside her; the delusion was cured for a few months and afterwards returned. 4 cases of fibro-myomata were treated in this way; 3 with excellent results; 1 is unimproved. In 23 cases this operation was performed for diseased ovaries or matted appendages. There were also 3 cases of hæmatosalpinx, 1 of hydrosalpinx, 6 of pyosalpinx, and 1 of tubercle of the tubes. The second death in the list was after operation on a pyosalpinx. As regards technique Dr. Haultain carried out asepsis in hospital practice but in private practice used antiseptic methods. Hæmorrhage should be fully controlled, especially by ligaturing the main sources of the blood-supply, before proceeding to free adherent tumours. Drainage was not used unless excessive hæmorrhage was feared and the vaginal route was preferred. In suturing the abdominal wound all the layers were included with silkworm-gut sutures. A nutrient enema was always given after the operation and was repeated every few hours if sickness was present. Light food was given whenever the stomach could retain it. Thirst was relieved by large saline enemata. As complications in this series he had had a case of double suppurative parotitis. In one case a pair of forceps had been accidently left in the peritoneum. The patient's temperature was irregular for twenty days after the operation, the next three days it was practically normal, but she was distinctly and rapidly failing. At the second operation the forceps were found embedded in plastic effusion and with difficulty were removed; the patient recovered slowly.—The PRESIDENT, Professor SIMPSON, Dr. HART, Dr. BREWIS, and Dr. MILNE MURRAY made remarks on the paper.

Dr. HAIG FERGUSON read a paper on Repeated Ectopic Pregnancy in the same patient with an account of a case where Two Gestation Sacs (one a Lithopædion) were successfully removed from either side at one operation. In surveying the published cases he found that in about 5 per cent. of all extra-uterine cases both tubes had been involved at the same time or at intervals more or less prolonged. The shortest interval was six weeks and the longest was five years. Dr. Ferguson's patient, after bearing 2 children, had menorrhœa for 4 months. She was then suddenly seized with pain on the right side with shivering and was confined to bed for many weeks. After 4 years her menses again stopped. After 2 months she suffered from pelvic pain and retention of urine. On examination a fluctuating swelling was found of about the size of a goose's egg on the left side of the uterus which was enlarged and pushed to the right. On the other side of the pelvis a hard, irregular body was found. A small piece of decidual membrane was passed from the uterus after the examination. On operating a tubal pregnancy with the ovary was removed from the left side. It had ruptured into the broad ligament, fresh blood-clot being found there. On the right side the tube was dilated to the size of the small intestine and was filled with serum. Attached to it was a sac which was found to contain the bones of a four months fœtus. This lithopædion sac lay in the peritoneal cavity attached to the tube by a narrow fibrous pedicle and looked as if it had been originally extruded through the peritoneal covering of the tube. The right ovary was cystic and was removed at the same time. The patient made an uneventful recovery. Appended to the paper was a list of all the references to the literature on the subject.—Dr. CROOM, Professor SIMPSON, Dr. HART, and Dr. HAULTAIN took part in the discussion.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Acute Hæmorrhagic Ascites.—Medical Folk-lore.

A MEETING of this section was held on Nov. 18th, 1898, Dr. J. W. MOORE, the President, being in the chair.

Dr. FINNY described a case of Ascites in a man, aged forty-two years, which proved fatal in three months from its earliest onset and for which paracentesis was required five times in the last three weeks, six and a half gallons of fluid being removed by simple drainage. The fluid from first to last was like blood in colour and on standing deposited a soft deep-stained sediment forming one-eighth or one-tenth of the volume. The patient was apparently up to the last fortnight of his life a healthy, well-nourished man, of a good fresh colour, a bright disposition, and of very active habits. At the post-mortem examination the liver was found to be healthy. The intestines were pressed to the right side by an enormous thickening of the transverse mesocolon and omentum and by a soft growth which filled up the whole of the left side of the abdomen and was in parts 2 in. thick and which readily broke down on handling, blood oozing from every part.—Dr. PURSER pronounced the neoplasm to be sarcomatous.

Dr. J. KNOTT read a paper on a Country Herbalist's Cure for the King's Evil. The details had been procured from a sexton in the west of Ireland. The cure was carried out in three stages: (1) the "sore" was dressed with a preparation of the leaves of the cuckoo sorrel; (2) it was then dressed with a preparation of the root of the sweet meadow; and (3) the healing was completed under a plaster compounded of bees' wax, sheep suet, yelk of egg, and first flour. Dr. Knott had found on looking into the literature of herbal simples that both the plants employed in this rural remedy had enjoyed a high reputation during the ages in which such remedies were specially prized. The treatment of scrofulous ulcers by the application of these herbs is mentioned by Dr. Thomas Beddoes and the account of it was quoted from this writer by Dr. T. M. Winterbottom who compares it with a very similar treatment of scrofulous sores which he had found in general practice among the aboriginal African natives about Bassa, on the Grain Coast. Lengthy quotations were given from a number of authorities, showing the extensive employment of these remedies in the herbals and pharmacologies of past ages.—Dr. COX said that Dr. Knott had omitted to refer to a book written by Keogh, a distinguished graduate of Trinity College in the last century. There was formerly in Ireland much medical literature and even at the present day a large amount existed not only in the Dublin museums but also in the British Museum. They had to thank men like Whitely Stokes for having enlightened the world as to the position of Irish learning bearing on this as on many other subjects.—Dr. KNOTT, in reply, said he had, as Dr. Cox had mentioned, omitted to mention the name of Keogh in connexion with the extract which he had made. He hoped that some day someone, under the auspices of the Royal Academy of Medicine in Ireland, would give a translation of the Irish writers on medicine. He considered that there was one man especially capable of doing so and that was Dr. Cox himself.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on Dec. 21st, Mr. Alexander Miller, President, being in the chair.—Dr. Edgar showed: (1) Placenta Duplex from a case of Placenta Prævia Centralis; (2) Retroflexed Fœtus; (3) Anencephalic Embryo of four weeks; and (4) Exencephalic Embryo of four weeks.—The President gave an interesting address on Twenty Years' Obstetric Practice. This embraced a consideration of 1000 cases. Of the many complications he referred to probably the most interesting was the one of acute inversion of the uterus. This was produced by the woman in attendance dragging on the cord. Mr. Miller found no difficulty in reducing with his hand the inversion which was complete.

PUBLIC ABATTOIRS FOR BRISTOL.—At the meeting of the Bristol Health Committee held on Dec. 20th there was a discussion on the question of public abattoirs which were strongly recommended in a report submitted some months ago by the medical officer of health (Dr. D. S. Davies). Apparently, however, the local tradesmen have some prejudice against municipal slaughter-houses and consequently, on the suggestion of the chairman, it was decided to have a conference between the committee and representative traders.

Reviews and Notices of Books.

A Text-book of Diseases of the Nose and Throat. By FRANCKE HUNTINGTON BOSWORTH, A.M., M.D., Professor of Diseases of the Throat in Bellevue Hospital Medical College, New York, &c. Third edition. Illustrated with 186 engravings and 7 coloured plates. London: Baillière, Tindall, and Cox. 1897. Pp. 814.

DR. BOSWORTH'S larger work in two volumes is well-known as a valuable treatise on the nose and throat, but it was—not unreasonably—considered that it was too voluminous for the ordinary student and general practitioner; he has therefore had the work cut down to the size of the present volume. This has been done by Dr. A. R. Schroeder. The result is very satisfactory for we find a careful account of the diseases of these important regions of the body comprised within one volume of moderate size, though it still occupies more than 800 pages. A good account is given of the methods of examining the upper air passages and the author considers that the direct rays of the sun form by far the best source of illumination and that they should always be used where available, especially in the first examination of the case. In his opinion the incandescent electric light offers no advantages over the ordinary gas-jet or paraffin lamp. The anatomy of the nose and nasal cavities is fully described and an account is given of their functions. In the treatment of hypertrophic rhinitis the author prefers chromic acid to the galvano-cautery, as he considers that the latter is a cumbrous method for destroying merely a small portion of tissue. Dr. Bosworth, in agreement with many rhinologists, does not think that advanced cases of atropic rhinitis can ever be really cured though the annoying symptoms may be removed. The diseases of the cavities opening into the nose receive full consideration. In the account of the external surgery of the nose is given a large series of woodcuts (42 in all) illustrating the skin incisions and the extent to which the bones are sawn in the various operations; they will serve to make clear to the reader what is often very difficult to understand from a description only. The next section is devoted to the diseases of the fauces. It is well written, and we need only remark that "croupous tonsillitis" is not a satisfactory synonym for acute follicular tonsillitis. The account of the larynx is good and quite full enough for all practical purposes. The last section describes the external surgery of the throat and contains accounts of pharyngotomy, thyrotomy, tracheotomy, and extirpation of the larynx. The illustrations throughout the book are numerous and the coloured plates are good. From a careful examination of the work we can recommend it with confidence to all who wish for a fuller account of the diseases of these regions than can be found in the ordinary text-books on surgery.

Disinfection and Disinfectants. By SAMUEL RIDEAL, D.Sc. Second edition. London: The Sanitary Publishing Co., Limited. 1898. Price 12*s.* 6*d.*

DR. RIDEAL has done a good service in the interests of sanitation by having written a reliable work dealing with the merits and demerits of the processes of disinfection in vogue and of the various chemical agents employed therein. We venture to maintain that the Government should provide some means of control over the various preparations placed on the market as disinfectants, since many of them are quite inert, exerting little or no bactericidal action, and thus deluding the public into the belief of security against infection. The work before us affords a useful means of discriminating between the active agents and those which are worse than useless. Moreover, in many instances it records the comparative bactericidal power of disinfectant substances. The list of these is now almost interminable, new ones said to eclipse previously existent ones in regard to bactericidal power being added almost day by day. Some idea of this number may be gained from the very interesting and instructive chapters of Dr. Rideal's book. Of a total of fifteen chapters no less than eight are devoted to chemical disinfectants which are classified as follows: the Non-Metallic Elements and their Derivatives (Chapters IV. and V.), Metallic Salts (Chapters VI. and VII.), Organic Substances (Chapters VIII., IX., and X.), and Compounds related to the Alcohols (Chapter XI.). The remaining chapters are devoted to the general principles of disinfection, mechanical disinfection, disinfection by heat, personal disinfection, the preservation of food, legal statutes and regulations, and lastly methods (bacteriological and chemical) of analysis.

The author freely recognises the assistance which a reference to the bibliography on the subject has afforded him and our own columns are frequently referred to in connexion both with practical inquiries which we have ourselves undertaken and the opinions and results expressed and contained in papers communicated to THE LANCET from time to time. It must have cost considerable time and labour in thus bringing together the gist of the literature which on this special subject is so very widespread. This alone merits a word of praise. But more than that, the book supplies in collective form just that information of which our medical officers of health and others concerned in sanitary organisation and administration are daily in search. It contains practical particulars and directions, and throws light upon the composition, character, and value (bactericidally) of many proprietary preparations and the bactericidal worth also of substances which are more familiar. In short, Dr. Rideal's book is a contribution of great importance to medical men, for it should very materially help them when they are confronted with the important question, as is so often the case, as to the best means of carrying out disinfection on the small scale and on the large.

LIBRARY TABLE.

A Short Manual of Analytical Chemistry. By JOHN MUTER, Ph.D., F.R.S.E., F.I.C., F.C.S. Eighth edition. Illustrated. London: Baillière, Tindall, and Cox. 1898. Price 6*s.* 6*d.*—There is an abundance of text-books on analytical chemistry, but Dr. Muter's manual is sharply distinguished from the bulk of these by not being confined to a special course or being written on the lines of examinational requirements. To some extent, however, the work has been written for those undergoing special study. Thus there are several chapters in it which are useful to medical and to pharmaceutical students. The sections on the qualitative detection of alkaloids and on certain organic bodies used in medicine with a general sketch of toxicological procedure and special processes for the analysis of drugs, urine, and urinary calculi may be quoted as examples. But the book, considering its size, is remarkably comprehensive in the treatment of the broad subject of analysis. The earlier portions are devoted to the ordinary methods of qualitative analysis and the detection of unknown salts, metals, acids, &c. In later sections we find chapters on volumetric and gravimetric quantitative analysis applied to the same class of substances. Then follows ultimate organic analysis until in Chapter X. the analysis of water, air, and food is describe[illegible]nd the processes are in accordance with our present k[illegible]wledge. The work is original in its plan and should serve as an excellent guide to those who are taking analytical chemistry as a study. Though a comparatively small volume it gives

an excellent idea of the wideness of the application of chemical analysis in the sciences and arts.

Twenty-two Years' Experience in the Treatment of Cancerous and other Tumours, with an Introduction on the Increasing Prevalence of Cancer and the Remedy for that Disease. By HERBERT SNOW, M.D. Lond., Surgeon to the Cancer Hospital. London: Baillière, Tindall and Cox. 1898. 8vo. Pp. 191. Price 5*s.*—In this book Dr. Snow generally uses the word "cancer" in its popular sense as synonymous with malignant disease, though occasionally he gives it a less extensive signification. The introduction contains remarks "on the increasing prevalence of cancer and the true remedy for that disease"; and we are told that "this huge aggregate of yearly deaths signifies nothing less than imperfect acquaintance with technique by most of those who are entrusted with cancer operations." This is a grave accusation and should not have been made, for its lack of foundation is known to all those who are acquainted with the facts. Dr. Snow finds fault with the ordinary pathological ideas with regard to malignant disease, rejects the common classification, and proposes one which is certainly more complex. At the present time, when the association between surgery and pathology is so intimate, it is almost incomprehensible that an author should write the following sentence, which we find on page 33: "To the existing practical divorce between the two branches [surgery and pathology], to the confused state of the latter, to the defective way in which it is usually taught, to the ultra-conservative instincts of the societies devoted to its culture, must be ascribed a large share in the progressive increase of cancer mortality." As to etiology, Dr. Snow thinks that "some palpable derangement or perturbation of the central nervous system is the all but invariable precursor of the most prevalent form of cancer," though he does not think that sarcoma has any such origin. In the medicinal treatment of cancer the author extols the value of morphine and cocaine, but the utility of these drugs is already well known to every surgeon. We are told that the only drugs which can arrest the career of cancer are "neurotics"; this is decidedly a novel use of the word and it is clearly not a printer's error for it is repeated. On page 93 it is said that when opium is smoked like tobacco all the essential principles are burnt up and none inhaled. This statement is not in accordance with the experience of many. Rodent ulcer is said to be "easily" eradicated; surely the adverb is rather misapplied. Dr. Snow insists much on marrow infection in cancer; undoubtedly it frequently occurs but it does not deserve to be given the important position assigned to it by the author in the tendency to recurrence and secondary infection exhibited by malignant disease. There are many ideas of value in the book but throughout is manifested a tendency by the writer to magnify his own work, knowledge, and power and to belittle the skill and achievements of others.

The Deformities of the Fingers and Toes. By WILLIAM ANDERSON, F.R.C.S. Eng., Surgeon to St. Thomas's Hospital, Examiner in Surgery at the University of London and the Royal College of Surgeons of England, &c. London: J. & A. Churchill. 1897. Pp. 150. Price 6*s.*—In 1891 Mr. Anderson delivered a course of Hunterian Lectures on the Deformities of Fingers and Toes and this volume contains the substance of those lectures, revised and brought up to date and augmented by a chapter on the Congenital Deformities of the Hands and Feet. The lectures were much appreciated when they were delivered and were well worthy of this reprint. The first section is devoted chiefly to a very important subject—namely, Dupuytren's Contraction of the Fingers. The first description of this condition was given in 1820 by Sir Astley Cooper who recognised the non-tendinous origin of the disease, but it was more fully described by Dupuytren in 1831, so that his name has ever since been attached to the disease. As to its frequency Mr. Anderson examined 2600 adults in several London infirmaries and found 33 cases, or 1·27 per cent.; but in 800 children not even one case was found. From the author's own experience he is not inclined to attribute much effect in the etiology of the disease to neurotic or gouty predispositions, but he admits that as most of his cases were infirmary patients these constitutional states would not have been so likely to be present as in other classes of the community. In one case by a bacteriological examination the presence of a micrococcus was demonstrated, but obviously no satisfactory opinion can be based on a single case. As to treatment, Mr. Anderson thinks that in mild cases non-operative measures may be sufficient and he considers that, although Adams's subcutaneous method may be sufficient in some cases, yet a plastic operation gives better results. Few would imagine that any danger could arise from Dupuytren's contraction, but Mr. Anderson relates a case in which a gentleman caught his contracted finger in the door-handle of a railway carriage with the result that he was only saved from severe injury by throwing his other arm round a pillar and so arresting his involuntary flight, but the sudden stoppage tore open the contracted digit. Hammer toe is well described and the tendency which this deformity exhibits to be transmitted by heredity is illustrated by a pedigree which shows its appearance in four generations. The author does not consider that short boots have anything to do with the causation of this condition. Resection of the joint (the articular ends of both bones being removed) is recommended as the most eligible operation, and the relief is immediate and permanent. Hallux flexus has not received as much general recognition as hammer toe; a good account is given of it and of hallux valgus and varus. The final chapter, on Congenital Deformity of the Hands and Feet, is not the least interesting in the volume.

New Inventions.

THE "ASSOCIATION" VACCINATOR.

WE have received from the Association for the Supply of Pure Vaccine Lymph, 12, Pall Mall East, one of their "Association" vaccinators, for which it is claimed that by its use the cuticle may be removed without the risk of drawing blood. This is a desirable property in an instrument employed for the insertion of lymph because the oozing of blood during the operation is not only unnecessary but it dilutes the lymph, interferes with its absorption, and is occasionally somewhat of a deterrent to mothers of infants. The vaccinator consists of three parts—a hollow handle of polished metal 3¾ in. in length, a set of four parallel needles fixed permanently to a needle-piece or mount which screws into the handle, and, lastly, a metal cap to cover

the needles when not in use. The illustration shows the needles and needle-piece, full size, screwed into the handle and covered by the cap represented by the dotted line. It will be seen that only about 1½ in. of the handle appears in the illustration. The hollow handle is convenient for carrying tubes and a small hole drilled right through the needle-piece, as shown in the figure, is useful for breaking off their sealed ends. The needles are sterilised by boiling, since, if held in a flame, they will be softened and easily bent. Their shape is the special feature of the instrument, for they are not brought to a sharp point but have their ends quite flat. The price of the vaccinator is 5*s.*

THE LANCET.

LONDON: SATURDAY, DECEMBER 31, 1898.

THE ANNUS MEDICUS 1898.

Medicine.

THE most important medical event of the year has probably been the passing of the Vaccination Act. This subject is dealt with at length in another part of our present issue (see p. 1790).

The proposal to establish a national crusade against tuberculosis has met with a large amount of support. The meeting held at Marlborough House under the Presidency of H.R.H. the PRINCE of WALES on Dec. 20th was indicative of the widespread interest which the movement has aroused. The presence of prominent statesmen and other well-known personages as well as many leaders of the medical profession augured well for the success of the association. But with another aspect of the case the National Association for the Prevention of Consumption and Other Forms of Tuberculosis promises to work much good for the general community—namely, in agitating for reforms in our food-supplies. Sir RICHARD THORNE in delivering the Harben Lectures chose as his subject the Administrative Control of Tuberculosis. He expressed the view that the source of danger from the meat-supply had been exaggerated, but that the remedy for such risk as existed lay in the abolition of private slaughter-houses and the provision of public ones in which a uniform system of inspection and a uniform standard for condemnation would be observed. The danger of the milk-supply to man and especially to the infant population he considered to be one of real gravity, and the loss of child-life due to tuberculosis in milch-cows was appalling. He laid great stress on the adequate ventilation of cowsheds and advocated frequent and systematic inspection of cowsheds and dairies by expert officials. The value of the open-air treatment of pulmonary tuberculosis is rapidly becoming recognised and promises to be the principal treatment of this disease in the future. In this country there are obvious difficulties with regard to its general adoption, but Dr. BURTON-FANNING and Dr. POTT have done much to encourage further trials in suitable districts.

During the past year there have not been so many bacteriological discoveries to record as in previous years. Dr. SIDNEY MARTIN in delivering the Croonian Lectures discussed generally the nature and action of the Poisons and Chemical Products formed by Pathogenic Bacteria and illustrated the subject by an original investigation of the pathogenic action and the chemical pathology of the bacillus of typhoid fever and two other bacilli closely related to it—namely, the bacillus enteritidis (GÄRTNER) and the bacillus coli communis. These lectures have added valuable information to our knowledge of the more precise action of these organisms. Investigations have been made by GRASSI, BASTIANELLI, and BIGNAMI in Italy and by Dr. PATRICK MANSON in this country which promise to have an important bearing on the prophylaxis of malaria. These observers maintain, and their contention is supported by experiments, that malaria may be contracted by means of mosquitoes. Their investigations are not yet complete and before definite statements can be made extensive observations will have to be carried out in other malarious districts than those in which experiments have already been conducted.

A full report on the Plague in India in 1896 by Mr. R. LATHOM, of the Indian Civil Service, has recently been published. It forms an excellent report of the epidemic and affords information of the greatest importance. It shows that the plague is no longer the inevitable scourge of former times. The malady remains a virulent and dangerous one but it has been found that careful nursing and healthy surroundings give the patients a chance of recovery greater than would have seemed possible during the epidemics of former days. The infection has been found to spread according to simple natural laws and can be fought by the prompt adoption of the measures dictated by science, common-sense, and experience. Sanitary and well-ventilated dwellings and cities containing ample space for their inmates are the conditions which render the spread of plague practically impossible. The bacillus of plague was first discovered by KITASATO and YERSIN in 1894. During the present epidemic the previous conclusions have been verified and the investigations into the bacteriology of the disease have been carried further by M. HAFFKINE, Professor HANKIN, and others.

Three fatal cases of plague occurring in Vienna caused much consternation, but fortunately, owing to the lessons learned from larger outbreaks, due precautions were taken and its spread was prevented. The facts are known to our readers but may be briefly recapitulated. For several months the members of the Austrian Commission who went to India for the purpose of studying plague in its clinical and bacteriological aspects had been continuing their investigations in the laboratories. In some manner an attendant who was engaged in looking after the inoculated animals contracted the disease and succumbed. Dr. MÜLLER who was in charge of him and two nurses who attended him also became affected and Dr. MÜLLER and one of the nurses died, but no further cases occurred. The sad occurrence emphasises the fact that where the organisms which cause this deadly disease are being experimented with, and, in fact, whenever they are present, whether accidentally or not, no precaution, either great or trifling, is to be neglected for the purpose of confining the organisms to the sphere allotted to them.

Dr. ROSE BRADFORD in the Goulstonian Lectures dwelt upon several points in the pathology of the kidneys. He detailed the results following partial nephrectomies (of varying degrees of severity) both on the composition of the urine and on the general metabolism of the body, and showed that whereas all partial nephrectomies increased the flow of urinary water only the more severe ones increased the excretion and production of urea. The effects following complete double nephrectomy were also considered and the lecturer explained his views as regards the nature of uræmia. He came to the conclusion (1) that uræmia cannot be held to

be due to simple retention and (2) that in kidney disease and after experimental lesions of the kidneys there is evidence of great tissue disintegration, and that it is more than probable that uræmia is dependent on this directly or indirectly.

Dr. HUGHLINGS JACKSON'S lecture on the Relations of Different Divisions of the Central Nervous System to One Another and to Parts of the Body showed the originality of thought and keen powers of observation for which the lecturer is well known. His observations on the various forms of epilepsy and allied conditions and the relations between the cerebral centres and nerve discharges will prove most valuable to those who are engaged in the study of these conditions.

In the Lumleian Lectures Sir R. DOUGLAS POWELL considered the Principles which Govern Treatment in Diseases and Disorders of the Heart. Especially interesting were his remarks on the cardio-vascular neuroses. He defined "cardio-vascular neurosis" as increased sensibility and a disordered action of the heart and vessels not dependent upon structural change. He also defined—and the term certainly needed definition—a "neurotic person" thus: "One may say that such a person is one whose whole nervous system, and especially that portion of it known as the organic nervous system, is hypersensitive and abnormally within his cognisance."

The excellent "System of Medicine" edited by Dr. CLIFFORD ALLBUTT has reached the fifth volume. This last addition contains articles on Diseases of the Respiratory and Circulatory Systems. A review has already appeared in our columns and it is unnecessary to again draw attention to the separate contributions. The whole publication will form a landmark in medical history and constitute the standard of reference for many years to come.

Dr. OSLER in the third edition of his "Principles and Practice of Medicine" has had the courage to introduce into the classification of diseases innovations which have long been foreseen but never adopted—namely, the inclusion of "Pneumonia" and "Rheumatic Fever" amongst "Specific Infectious Diseases." His decision in the former case will doubtless be accepted without cavil, whilst many authorities will prefer to wait before unhesitatingly removing the latter from the list of "Constitutional Diseases." Dr. ORD, as the Bradshaw Lecturer, chose for his subject Myxœdema and its Allied Disorders in their clinical aspect, considering their recognition, their differential diagnosis and their treatment. He expressed the opinion that the administration of the thyroid gland itself, when it could be carefully and regularly maintained, was the most appropriate form of treatment.

Great interest was naturally taken in the delivery of the HUXLEY Lecture on Recent Advances in Science and their Bearing on Medicine and Surgery, by Professor VIRCHOW. He propounded his original thesis that pathology is in reality a branch of biology. An especially interesting part of his address was the exposition of parasitism and the great extension which has been given to this study in the discovery of the minute parasitic agents which cause the infective diseases. He reminded his hearers that the reaction of the tissues and organs to the bacterial poisons forms an essential part of these diseases; he bade them remember that there may be some infections in which bacteria have no share; to the incalculable gains to humanity arising from the recognition of these agencies he bore ample witness, and he instanced the introduction of serum therapeutics as evidence of this assertion.

At the annual meeting of the British Medical Association held in Edinburgh three important discussions were held. Dr. ALEXANDER JAMES introduced the subject of the Clinical Varieties of Hepatic Cirrhosis; Dr. T. F. S. CAVERHILL that of the Open-air or Hygienic Treatment of Phthisis; and Sir WILLIAM BROADBENT that of the Significance and Consequences of Different States of Vascular Pressure, with their General Management. He devoted himself to a consideration of the resistance at the periphery; variations in intravascular pressure as occurring in the individual, or as presented by different persons, or in different states of health; the causation, significance, and treatment of low intravascular pressure; and, finally, the high intravascular tension and its treatment. He referred especially to the tension in uræmic convulsions and chronic bronchial catarrh, maintaining that in the latter while attacks may be warded off by wintering in warmer climates much more effectual relief may be afforded by eliminants.

Surgery.

In reviewing the work which has been done in surgery during the present year we are struck, not by any specially notable new departure either in the science or the art, but by the general progress which has been made in all departments. Operations which are now of almost daily occurrence once excited the attention and admiration of the surgical world, and this fact shows how much has been done to simplify and perfect our operative procedures so that even difficult operations can be undertaken with every reasonable hope of success. Perhaps it is in the surgery of the abdomen that the greatest progress has been made. On various occasions portions of the stomach have been removed for malignant disease, but it was reserved for Dr. CARL SCHLATTER of Zurich to remove the whole of the human stomach, and we were able to publish early in the year an account, specially translated for THE LANCET, of this heroic operation. The patient was a woman, fifty-six years of age, who for several months had suffered from persistent vomiting and an obvious swelling was felt above the umbilicus. When the abdomen was opened it was seen that the whole stomach from the cardia to the pylorus was converted into a hard mass of carcinoma. Gastro-enterostomy was impossible and Dr. SCHLATTER determined to attempt complete removal. The cardiac end of the stomach was separated from the œsophagus which had been clamped and the pylorus was also cut through. It was not found possible to bring the duodenum up to the œsophagus, so its open end was turned inwards and closed, and the œsophagus was united by lateral anastomosis to the jejunum about a foot from its commencement. Although some vomiting occurred for a few days, the patient's progress towards recovery was rapid and the latest reports of the case state that she is still in good health. Obviously a case like this is suited for solving many important physiological problems in digestion and numerous careful observations have been made. Since the publication of

Dr. SCHLATTER'S case, Dr. C. B. BRIGHAM of San Francisco has recorded a successful case of extirpation of the stomach. The patient was a woman, aged sixty-six years, who had suffered from gastric distress for a year, but by liquid food she was able to keep up her usual weight. In this case after removal of the stomach it was found to be possible to unite the duodenum directly to the œsophagus by means of a Murphy's button. Recovery followed and the patient was well seven weeks after the operation. The number of cases which will prove suitable for extirpation of the stomach will always be small, for it is inadmissible if the organ has become fixed, but in certain cases it offers a radical treatment where only palliative measures have hitherto been available. The survival and good health of Dr. SCHLATTER'S patient for nine months after the operation prove that the functions of the stomach can be dispensed with without the general well-being of the patient materially suffering.

Of late years a condition has been from time to time recorded to which the title of "idiopathic dilatation of the colon" has been applied. The etiology is obscure, but in many cases no obstruction exists, though it is possible that in some of the young children in whom it has been observed it was the result of congenital stenosis. The majority of the cases end fatally, but the formation of an artificial anus has in some cases resulted in recovery. Mr. FREDERICK TREVES has published a case in which the tolerance shown by the human body to the removal of large portions of the alimentary canal was strikingly manifested. A little girl, six years of age, had been the subject of idiopathic dilatation of the colon from birth and the interference with the onward passage of fæces was so great that Mr. TREVES made an artificial anus and nine months later he removed the whole of the descending colon, sigmoid flexure, and rectum, and brought the end of the transverse colon down to the anus where it was secured. The child made a speedy and excellent recovery. Another interesting case in which much large intestine was removed was that of a woman, thirty-three years of age, from whom Mr. R. LAWFORD KNAGGS successfully removed the cæcum and the ascending and transverse colon for malignant disease of the colon extending from the ileo-cæcal valve to the splenic flexure. Gastrorrhaphy or gastroplication is a recently introduced operation which has been devised for the treatment of non-obstructive dilatation of the stomach—it consists in infolding a portion of the stomach wall and fixing it with sutures. We published a successful case operated on by Mr. B. G. A. MOYNIHAN of Leeds in which a novel modification of the operation was employed. Mr. MAYO ROBSON has recorded 3 cases in which irregular muscular spasms were associated with dilatation of the stomach due to fibrous stricture of the pylorus. After pyloroplasty all the cases were relieved of the spasms which were probably the result of the absorption of toxins from the dilated stomach.

It is difficult to imagine a more serious surgical condition than acute general peritonitis, and the frequency of its occurrence amply justifies the recording of the comparatively few cases in which recovery has followed, and with our increasing knowledge of the powers of the peritoneum a favourable result is becoming increasingly frequent. The procedure to be adopted to cleanse the infected peritoneum must vary with the extent of the serous membrane which is implicated. If only a small portion is affected careful wiping with a sponge is sufficient, but with larger areas this becomes very difficult and in recorded cases recovery has followed the most diverse treatment; in some flushing with hot water has proved successful, in others the surgeon has carefully wiped all over the inflamed peritoneum, while in others merely a drainage-tube has been inserted, and yet the patient has not died. We can only imagine that the form of septic organism present has not been the same in all these cases, for it not rarely happens that the most energetic cleansing of the peritoneum is completely unsuccessful.

Rupture of the gall-bladder unassociated with injury to the liver is rare and therefore especial interest was felt in a case recorded by Dr. J. M. H. MARTIN of Blackburn in which rupture of the gall-bladder occurred in a boy, aged nine years, who was run over by a heavy cart; distension of the abdomen followed and though no jaundice was present the stools were clay-coloured. On opening the abdomen it was found that a large quantity of bile-stained fluid was free in the peritoneal cavity; 5 pints of this fluid were evacuated and a drainage-tube was inserted. Complete recovery followed. The difficult operation of suture of the bile-ducts after rupture or after removal of a calculus has been facilitated by an ingenious device of Professor W. S. HALSTED of Baltimore. This consists in a little hammer-shaped instrument by which the duct can be drawn up towards the operator, so that stitches can be fairly readily applied; it is likely to prove of great service.

Repeated aspiration in suppurative pericarditis has occasionally proved successful but generally it has failed. Dr. J. B. ROBERTS advocates incision after an exploratory aspiration has been performed to determine the presence of pus; in the method which he advises the fourth and fifth costal cartilages at the sternal junction are exposed and are divided, care being taken to avoid injuring the pleura, and on cutting through the soft tissues the surface of the pericardium is laid bare, and it can then be incised and the cavity drained or if necessary irrigated.

The surgery of the lung is practically the most recent of all the departments of surgery, and although it can hardly be said that at present very much has been done yet there is at least much promise for the future. Drainage of large tuberculous cavities in some cases saves a patient much distress even if it does not interfere with the onward progress of the disease. Mr. NORMAN PORRITT of Huddersfield considers that tuberculous disease of the apex of the lung has a natural tendency to heal by the drawing in of the chest wall over the diseased area, but that the rigidity of the ribs prevents this; he therefore suggests that portions of the second and third ribs should be excised both in front and behind in order to allow of this contraction, and he has performed the operation in three cases, in one of which much improvement followed, though in the two others death occurred a few days after the operation.

The treatment of peripheral aneurysms by ligature above and below and extirpation of the sac has been followed now in a large number of cases. We have published notes of one case in which Professor DÖLLINGER performed this

operation for an aneurysm of the iliac artery at its junction with the femoral, and the patient recovered without any adverse symptoms.

Arterio-venous aneurysm of the orbit has always been but little amenable to operation. Dr. J. H. WOODWARD of New York treated a case of this description by ligature of the left common carotid. Some temporary improvement followed, but complete recovery resulted after subsequent ligature of the arteries of the collateral circulation at the root of the nose.

The dangers of the treatment of carotid aneurysm by manipulation are so great that it is now never employed, but occasionally the examination of the aneurysm by the surgeon results in such displacement of the clot that solidification results; this was well illustrated in the case of a man who had been in the Royal Portsmouth Hospital but who left declining any operation; a few days after leaving the hospital pressure on the aneurysm by Mr. BOND of Havant was followed by cessation of the pulsation.

Mr. W. H. BENNETT contributed a useful paper on the Value of Massage in the Treatment of Recent Fractures. Although the method has been ably advocated by many surgeons, yet it is too little employed. By carelessness of course harm may result, but the benefits are so great that, as far as we are aware, no surgeon who has adopted the method has ever discarded it in favour of the usual treatment by complete fixation. In injuries and dislocations of joints also early massage goes far towards obviating the occurrence of the most troublesome sequelæ; and attention has recently been drawn to this matter by Dr. LUCIEN TIBERGHIEN of Brussels.

It is now generally recognised that basal meningitis, including the tuberculous variety, leads to a fatal result owing to the distension of the ventricles of the brain which is caused by the blocking of the foramen of Majendie. In such cases the only chance of relief is by draining the ventricles and this has usually been attempted by puncture through the vertex of the brain. About five years ago PARKIN suggested "basal drainage"—that is, the making of an opening into the subcerebellar space. This operation has been performed on several occasions and sometimes with success. We published a case under the care of Dr. OVEREND and Mr. CROSS in which this form of drainage was employed in a case of basal meningitis apparently traumatic in origin. Unfortunately, very little improvement followed, the child dying three weeks later; but although no benefit resulted the operation apparently did no harm.

Much attention was naturally attracted to the subject of fracture of the patella by the accident which befell H.R.H. the PRINCE of WALES. The result which has been obtained in that case has fully justified the decision of the surgeons who were consulted not to recommend the performance of any operation. In the majority of cases primary suture, if performed with complete asepsis, gives very satisfactory results.

The employment of COLEY'S fluid for malignant growths cannot even yet be said to stand on a certain basis, for even those who advocate its use claim that it only affects spindle-celled sarcomata. The great difficulty in appraising correctly the value of this remedy is due to the fact that the diagnosis of sarcomata is frequently very difficult, for it is often practically impossible to distinguish a sarcoma from an inflammatory growth. However the cases which have been recorded fully justify the administration of this substance in all cases of tumours which are thought to be sarcomata and which are not suitable for removal.

Obstetrics and Gynæcology.

One of the most interesting events of the year has been the appearance of the English translation of Professor SCHENK'S work upon the production of sex. His theory, shortly, is as follows. If the tissue metabolism of the mother is carried on in the highest possible perfection she is likely to bear a male child. If, on the contrary, her metabolism is imperfect, as shown by the presence of sugar in the urine, she is more likely to bear a female child. Professor SCHENK in cases where male children are desired endeavours to rectify any faulty metabolism by appropriate diet and judges of his success by the examination of the urine for sugar. It is evident that this theory does not provide for the production of female children and is not applicable to cases where the mother's metabolism is already perfect. It remains to be seen whether Professor SCHENK'S theory of the determination of sex will hold its own or whether it will not quickly pass into oblivion, like the many other theories which have preceded it.

At various times the treatment of uterine fibroids by ligaturing the uterine arteries and so cutting off their main blood-supply has been advocated. The recent anatomical studies of M. FREDET have shown that the uterine arteries practically supply the whole of the uterus and that the ovarian artery sends a very small and comparatively insignificant branch to anastomose with the uterine. This anatomical fact explains the remarkably good results which often temporarily follow the ligature of the uterine arteries, since until the anastomotic branches become enlarged ligature of these arteries cuts off practically the whole blood-supply to the uterus. Dr. HOFMEIER'S work upon the cilia of the uterine epithelium has been lately confirmed by Dr. MANDL who finds that the current produced by their action is from the fundus of the uterus to the cervix and therefore against the course of the spermatozoa. An important contribution to the anatomy of the third stage of labour has been made by Professor STEPHENSON who has published a plate of the uterus with the placenta still *in situ*.

There has been a considerable amount of activity during the past year in both obstetrical and gynæcological practice and although no very new departure has been initiated yet many old theories have been confirmed and others shown to be no longer tenable. An interesting discussion took place at the British Medical Association meeting upon the use of forceps. The debate was opened by Dr. MILNE MURRAY and continued by many obstetric authorities. On the whole, opinion seemed to be upon the side of axis-traction forceps as the best type of instrument, and there was a considerable amount of dissent expressed from the views as to the abuse of forceps at the present day put forward by Professor SINCLAIR at the meeting in 1897. One of the most interesting obstetrical cases recorded in THE LANCET during the past year was one of

incomplete retroflexion of the gravid uterus related by Dr. HERMAN in which the patient, a primipara, was prematurely confined at the eighth month without interference. The child presented by the breech and was born dead, but the mother did well. As the writer points out interference in such cases is uncalled for and as a rule useless. The treatment of irreducible cases of incarcerated retroverted gravid uteri by abdominal section has been further tested by Professor JACOBS of Brussels who has treated 11 cases in this way with very good results, abortion occurring after the operation in only one case. Such a mode of treatment would certainly appear to be justifiable where the only other alternative is the production of abortion. A most important contribution to the study of Cæsarean section has been the publication by Professor LEOPOLD of the results of 100 cases of Cæsarean section and Porro's operation. He considers the conditions under which the operation may be done must include the means of attaining most rigorous asepsis. He therefore thinks it should not be performed except in a properly equipped institution. The conditions necessary for the conservative operation he lays down as follows: (1) that the woman in labour has energetic contractions of the uterus; (2) that the general health has not been enfeebled; and (3) that it is certain that the patient has not become infected at the time of the operation. He also insists upon the fact that the operation must not be performed upon a patient the subject of gonorrhœal infection, whether acute or chronic. There were 7 deaths amongst the 71 cases of Cæsarean section, or 9·8 per cent., and 3 amongst the 29 cases of Porro's operation, or 10·3 per cent. All the children of the cases of Cæsarean section lived, while 2 of the children died during the performance of Porro's operation. In conclusion the author compares his results with those of symphysiotomy as published by Professor MORISANI, Professor PINARD, and others, and finds that the rate of mortality is slightly in favour of the Cæsarean section. The method of making a transverse incision in the uterus in performing Cæsarean section recommended by Professor FRITSCH last year has been adopted with good results by several other surgeons. It promotes contractions of the uterus, renders the control of hæmorrhage more certain, enables the child to be extracted with ease, reduces the risk of subsequent hernia as it allows the incision in the abdominal wall to be made higher up, and assists in preventing the escape of blood or amniotic fluid into the peritoneal cavity.

At the end of last year a paper was read before the Obstetrical Society of London by Dr. MACKERRON upon the Treatment of Ovarian Tumours Complicating Labour. The author had collected 183 cases and concluded that reposition should be tried in all cases, while if this failed resource must be had to puncture of the tumour, Cæsarean section, or abdominal or vaginal ovariotomy. Professor SPENCER related a case of a dermoid tumour removed during labour by abdominal ovariotomy, the child being delivered by forceps *per vias naturales*, both mother and child doing well. In the discussion upon Dr. MACKERRON'S paper the general opinion appeared to be that this was probably the best method of treating such cases when reposition was impossible. M. LINDENTHAL has succeeded in isolating an anaerobic bacillus which he regards as the essential factor in producing the conditions of physometra or gas in the uterus. He has also succeeded in producing an analogous condition by introducing a pure culture of the organism into the amniotic cavity of a pregnant bitch.

A very valuable addition to our knowledge of ectopic gestation has been made during the year by the delivery of the Ingleby Lectures for 1898 upon this subject by Mr. JOHN W. TAYLOR. It is astonishing to think how our knowledge of this condition has grown during the last few years and these lectures derive an additional importance from the fact that we owe much of our knowledge to their author. Mr. TAYLOR draws attention to Professor LEOPOLD'S important and recent case of utero-abdominal gestation. The patient ruptured her uterus by falling down stairs two or three weeks before quickening. At the operation at term the dead fœtus was found lying in a thin sac in the abdominal cavity, the cord passing into the uterus through a perpendicular opening 2 cm. long behind the right broad ligament. An uninterrupted recovery followed.

Numerous cases of puerperal septicæmia have been recorded from time to time during the year in our columns in which the treatment by anti-streptococcic serum has been carried out. Unfortunately from the absence of any bacteriological examination many of these cases are valueless as proofs of the efficacy of the treatment. Now that we know that puerperal septicæmia may be due to a variety of organisms it is most essential that whenever possible a bacteriological examination of the contents of the uterus should be made so that a definite conclusion may be come to as to the value of the serum. The matter was discussed at a meeting of the Obstetrical Society when very different opinions were expressed as to the value of the treatment. At the present time it may be said that while the injection of anti-streptococcic serum in cases of puerperal septicæmia does no harm it has yet to be proved that it does much good. A very important *résumé* by Dr. COBBETT of the whole subject appeared in our columns in April.

At the British Medical Association meeting in the Gynæcological Section a discussion was opened by Dr. CULLINGWORTH upon the Treatment of Pelvic Inflammation. The subject was considered under the two heads of the indications for operative interference in pelvic inflammation and the choice of time for operation. The conclusions arrived at with regard to operative interference were that it was as a rule necessary in all cases where there was pus present; in cases where after the acute attack had subsided a swelling still remained which showed no signs of diminishing or even grew larger, as, for example, in cases of hydrosalpinx or diseased ovaries; and in certain cases of non-suppurative salpingitis where the patient belonged to the labouring classes and where it was important that she should be restored to health as soon as possible.

With regard to the choice of time Dr. CULLINGWORTH was of opinion that any operative interference should be avoided as far as possible during an acute attack. The discussion which followed was one of great interest, as the speakers included Professor DOYEN of Paris, Professor JACOBS of Brussels, Professor LANDAU of Berlin, Professor SAENGER of Leipzig, Professor FEHLING of Halle, and Professor MARTIN of Berlin.

An important communication was made in May by Mr. ALBAN DORAN to the Obstetrical Society amplifying his previous paper upon the subject and including all the cases, 23 in number, of Primary Carcinoma of the Fallopian Tube recorded up to April, 1898.

Among the papers read before the British Gynæcological Society was one by Dr. BANTOCK upon Dysmenorrhœa and one by Dr. PURCELL upon the Risks to the Ureters when performing Hysterectomy, illustrated by a case in which both ureters were occluded and freed fifty-eight hours afterwards.

The operation of ovariotomy has been performed both upon the very aged and the very young, but the youngest successful case would appear to be that of a child, aged four months, reported by Mr. D'ARCY POWER to the Pathological Society in March last in which he removed a multilocular ovarian cyst. The question of the best method of operating in cases of carcinoma of the uterus still occupies very largely the attention of gynæcologists. The method of removing the uterus by abdominal hysterectomy with a free excision of the broad ligaments and removal of all the glands lying in the cellular tissue appears to be gaining ground. There can be no doubt that an operation of this kind is more in keeping with the trend of modern surgery than the relatively more incomplete operation of vaginal hysterectomy. Whether the ultimate results will render the additional risk of such a procedure justifiable remains to be seen. There appears to be no reason why the modern methods of removing the disease as widely as possible should not be applied to the uterus as well as to other viscera in the body. A number of cases have been operated upon in this way during the past year and the immediate results of the operations show that the mortality has been definitely diminished, and no doubt further experience will tend to produce still better results. The question as to whether a sound can be passed into the Fallopian tube or not would appear to be set at rest by a case recorded by Dr. HIND in which a sound was actually found lying in the tube on abdominal section. The sound in this instance passed in a distance of 8 in. and protruded at the abdominal ostium of the tube. Attention has been drawn in our columns to the application of steam to the interior of the uterus and it was shown that this method was not without its dangers, several cases having been recorded where the uterine cavity had been completely obliterated as a result of its employment. A good deal of attention has been paid to this mode of treatment lately and if used with due precaution it may prove of value in suitable cases where curettage even when repeated has failed to arrest hæmorrhage.

The past year has been unusually prolific in the production of new works upon midwifery and gynæcology, some of them of great merit.

Therapeutic Progress.

Perhaps one of the events of the greatest interest in the current year has been the production of the long promised British Pharmacopœia. It is not customary to look to the Pharmacopœia for new drugs, but to a great extent the Pharmacopœia indicates the trend of modern thought in the administration of remedies and it undoubtedly greatly influences the teaching of medical students, while it also affects the practice of medical men. For a short time after a new issue has been published some degree of chaos usually results. New remedies are introduced, new preparations are substituted and doses are altered, and the more conservative members of the profession are perhaps prone to rebel against the interference with their daily routine. In the Pharmacopœia of 1898 the comparative absence of complaints in the medical journals appears to indicate that changes affecting practice have been made with the greatest caution and that these changes are generally welcomed. The elimination of antiquated material has been performed with considerable tact and there have been but few protests against the extremely lengthy lists of drugs and preparations omitted from the last British Pharmacopœia. On the other hand, the additions appear to have given general satisfaction, and amongst the criticisms to which the volume has been subjected there have been but few suggestions for other additions. Amongst pharmacists it is true that some degree of criticism has arisen, but it would be impossible to expect any volume which is full of directions to pass unchallenged and although now more than six months have elapsed since its appearance the new Pharmacopœia has not yet been charged with any serious error or misstatement.

The publication of the Pharmacopœia has necessarily led to the publication of new editions of text-books on materia medica and the year is also noteworthy for new editions of several text-books on therapeutics.

At the meeting of the British Medical Association in Edinburgh the Therapeutic Section devoted three days to Discussions—(1) upon the Treatment of Diseases of the Stomach; (2) upon the Treatment of Chronic Renal Disease; and (3) upon the Therapeutic Value of Recent Synthetic Analgesics. In the first discussion Professor EWALD of Berlin made a valuable contribution, summarising the influence of treatment upon the gastric chemical processes, while Professor TURCK of Chicago read an interesting paper on the Treatment of Dilatation of the Stomach by a System of Gastric Gymnastics. In the discussion on Chronic Renal Disease, introduced by Dr. TIRARD the subjects chiefly considered were the value of pilocarpin in the treatment of uræmia and the administration of morphine in the presence of uræmic convulsions. On neither of these points, however, were the speakers unanimous. Professor STOCKMAN gave an interesting account of the risks of the various recent synthetic analgesics and he was followed by Dr. C. D. F. PHILLIPS, who spoke in favour of antipyrin, antefebrin, phenacetin, and exalgin.

Amongst the other papers read at this meeting may be mentioned that by Professor CASH dealing with the pharmacology of the alkaloids of aconite; one by Dr. GILLESPIE on the Value of Bromide and Iodide of Strontium for Exophthalmic Goitre in Children; and one by Dr. MCWALTER of Dublin propounding numerous curious criticisms upon the Pharmacopœia and upon the mode of its production.

Comparatively little has been added to our knowledge of the local anæsthetics. Less is now heard of the value of eucaine, while the actions of holocaine have been further investigated. Methylene blue continues to attract attention, but it is somewhat difficult to group its actions since it has been employed for such a variety of conditions. It has been

used in malaria and has been credited with possessing prophylactic as well as curative properties. It has also been employed for the relief of pains varying from the lightning pains of locomotor ataxy to slighter forms of facial and sciatic pains. It has also continued to be administered in gonorrhœal urethritis and benefit during its administration is claimed in some few cases of diabetes mellitus.

The list of antiseptics has not been greatly extended during the year. Protargol has been employed in the treatment of ophthalmia and in acute conjunctivitis, while further advocates have been found for chinosol and iodoformogen, the latter being substituted for iodoform.

For the treatment of cardio-vascular troubles the more general employment of morphine has been advocated and its effects have been attributed to its influence upon the nervous apparatus of the cardio-vascular system, both central and local. Periplœin, a glucoside from periplœa græca, has been found to increase the blood-pressure, to reduce the frequency of the pulse, and to act as a diuretic like digitalis, while it can be administered more easily by hypodermic injection.

In the early part of the year an interesting paper appeared in our columns summarising the actions of creosote and of guaiacol and giving a description of creosotal, for which certain advantages were claimed, the chief being that it provoked less gastro-intestinal trouble. Other remedies which have been employed in the treatment of tuberculosis are guaiacolate of piperidin, cinnamic acid, and geosote. Of these cinnamic acid has been applied hypodermically, but it possesses the great disadvantage of producing severe burning pain. Geosote is a valerianate of guaiacol which may be employed internally or administered by subcutaneous injection. For all three of these remedies good results have been claimed. There is very little that need be said of the drugs influencing the digestive system. Although many papers have appeared on this subject they have in the main followed well-beaten lines. It is true that a new vermifuge named "tenaline" has been suggested, but hitherto it has only been administered to animals and it does not appear to be wholly devoid of danger.

Sparteine sulphate, the active principle of broom, has been recommended for the treatment of dropsy, and it has been claimed for this remedy that it is an efficient diaphoretic which is less nauseous than other preparations of broom. Diuretin has also been discussed and it is said to have given good results in cases of chronic tubal nephritis after digitalis had ceased to act. Dr. DRESCHFELD states that occasionally with cirrhosis of the liver he has found benefit when the symptoms have arisen suddenly, while little relief was given when the onset had been more gradual.

The influence of drugs upon gout forms the subject of some papers which appeared in our columns. The general result of some experimental researches appears to be that alkalies, lithium salts, piperazine, and lysidine exert no special solvent effect upon sodium biurate, while sodium salicylate not only has no special solvent action, but leads to an increased formation of uric acid in the kidneys.

Veratrum viride has been used in a case of puerperal eclampsia and, inasmuch as it relieves arterial tension and causes diminution of the pulse-rate, it has been credited with good results.

The year has shown continuous research for remedies which will influence the growth of cancer, or which will control tuberculous processes either in the lungs or in the joints. Chelidonium has been recommended for cancer and it appears to produce much local irritation when injected in the neighbourhood of new growths. It was at one time hoped that the x rays would be of service in the control of tuberculosis, but recent observers maintain that they possess no therapeutic efficacy. In tuberculous caries and in gland affections chinosol has given some satisfaction. Whooping-cough, which forms such a cheerful field for investigation, has been treated with pertussin, a proprietary preparation of thymol, which has been strongly recommended; while one observer has recently advised syringing out the ears night and morning with lukewarm boric solution or water, and the application to the meatus and tympanum of a paint containing hydrochlorate of cocaine, glycerine, and perchloride of mercury.

The foregoing account sufficiently indicates that both medical men and chemists continue to prosecute researches unremittingly and in many directions. The interest in producing new antiseptics, new antipyretics, and new hypnotics has largely given place to a struggle with tuberculosis. There is a growing belief in the efficacy of the "open-air" treatment, but work continues meanwhile with respiratory antiseptics. Some therapeutic habits have been challenged as though they were articles of belief but improvement in our resources must result from scepticism and inquiry and our treatment must benefit as it is thus rendered less empirical and more scientific.

Ophthalmology.

The Bowman Lecture was delivered by Mr. PRIESTLEY SMITH who, whilst fully recognising the value of optical treatment in strabismus and the frequent necessity for operative procedures either by tenotomy of the stronger or by the advancement of the weaker muscle, yet availed himself of the opportunity of warmly advocating the orthoptic or, as he prefers to name it, the "educative" mode of treatment, in which the patient is taught the forgotten art of binocular vision by means of the monocular shade, the reading bar, the stereoscope, and other exercises—a method practised with good results by M. JAVAL in Paris but somewhat neglected elsewhere.

Several new remedies have been recommended such as euphthalmin, itrol, protargol, airol, holocaine, and various others none of which seem to be superior in reducing inflammation to such old-fashioned remedies as alum and nitrate of silver or more effective in their action on the pupil than atropine or eserine.

It is not right to make *a priori* statements or to limit the powers of nature, but we should hardly expect that detachment of the retina and sundry other affections of the eye could be advantageously treated by a glycerine extract of ciliary body and vitreous humour taken by the mouth or injected subcutaneously as recommended under the name of "oculine" by Dr. LAGRANGE of Bordeaux. M. FROMAGET, however, states that he has found the aqueous extract of the adrenals to be of service in the treatment of various forms

of conjunctivitis and blepharitis as an adjunct to antiseptic measures and that it has a powerful hæmostatic effect in hæmorrhage.

The Roentgen rays have been used with success on different occasions by HOTZ, STARR, DE SCHWEINITZ, and others, and instruments have been devised by Mr. MACKENZIE DAVIDSON in this country and by Dr. SWEET in the United States to overcome the difficulty of locating with exactness the position of the foreign body in view of the great thickness of the region through which the rays have to pass. A remarkable circumstance noted by M. FOVEAU DE COURCELLES was thought by him to be of sufficient importance to be brought under the notice of the French Académie des Sciences—viz., that amongst 204 blind children 5 boys and 4 girls were able to recognise the Roentgen rays. Some saw the x, cathodic, and fluorescent rays, others only the cathodic and x rays, and one described them as being of reddish colour.

The importance of preventing the introduction of trachoma or "granular lids" into a community or of eradicating it by prompt and effective measures is shown by the observation of FEUER in Hungary. In that country there are between 7,000,000 and 8,000,000 inhabitants and the proportion of trachomatous patients is no less than 4 per 1000. He believes it to be independent of nationality, soil, race, altitude, and even of cleanliness, since the Tsiganes who are certainly the dirtiest are the least affected. It spreads by contagion and its ravages are so serious that not only is subjection to treatment made compulsory, but neglect on the part of the patient is liable to fine and even to imprisonment.

Dr. PRIOUZEAU has been led from his observations to establish a connexion between chalazion and ametropia, for he finds that 70 per cent. of cases of chalazion are hypermetropic, 12 myopic, and 13 astigmic, whilst the most careful research has failed in his hands to demonstrate the presence of a microbe to account for the disease.

In view of the fact that certain forms of lenticular cataract, and especially those presenting equatorial striæ, develop in many instances very slowly or remain stationary for months or years there is good sense in the opinion expressed by Dr. HOTZ of Chicago, that the word "cataract" should not be mentioned to the patient except where the disease is moderately advanced or a positive statement demanded, for the quacks who state that they can cure cataract by absorption, electricity, or prayer are apt to claim the retention of vision as the result of their operations, and to throw discredit on legitimate means of relief. It may be remarked that Professor SCHMIDT-RIMPLER has brought together several cases of the clearing up of cataracts recorded by reliable authorities and gives the details of two which were seen by himself, and Professor EWALD of Strasburg describes a condition of haziness of the lens in a rabbit which he was able to remove or disperse without operation.

The subject of glioma of the retina was discussed in the Ophthalmological Section of the American Medical Association which met last summer at Denver. Dr. J. Q. THOMPSON, who introduced the subject, had seen 13 cases of glioma of the retina in the course of twenty-seven years out of 24,500 cases, whilst it was stated that a Parisian ophthalmologist had only seen 4 cases of glioma out of 50,000 cases. Like cancer in other parts of the body, it is irregularly distributed and it appears to be more frequent in the negro than in the white man. In the discussion which followed it was agreed on all hands that the only treatment which promised success was early and complete excision of the eye with removal of the contents of the orbit if the disease was not in an early stage and strictly confined to the globe.

A novel and somewhat startling application of physiological knowledge to the treatment of disease has been made by MM. ABADIE and JOANNESCO who recommend ablation of the superior cervical ganglion or section of the sympathetic cord in the neck on both sides for the treatment of glaucoma. That such an operation amongst other effects lowers the tension of the globe is undoubted, whilst that the tension can be raised by galvanisation of the upper extremity of the divided nerve was shown by the late Dr. BROWN-SÉQUARD, but its mode of action in relieving glaucoma, as Dr. CAMPOS remarks in an article contributed to the *Recueil d'Ophtalmologie*, is not clear and is, indeed, in opposition to the generally accepted explanation of the nervous origin of glaucoma. It seems to be a formidable proceeding considering our ignorance of the secondary effects which may occur in man, but the preservation of sight is paramount to most considerations. Dr. HUGUENIN has performed a useful labour in following up the ultimate effects of the ordinary treatment of glaucoma by iridectomy in 76 patients operated on in private practice by Dr. HAAB of Zurich, and his observations are encouraging since they show that the tension of the eyes is permanently reduced by the operation and that the vision improved not only in acute but also in subacute and chronic cases of the disease.

It would appear that small degrees of astigmatism, if with reversed axes in the two eyes are especially troublesome to the patient, and Dr. GEORGE M. GOULD records a case of severe and repeated sub-conjunctival hæmorrhages where this condition having been diagnosed under atropine the employment of suitable corrected glasses prevented any recurrence of the affection. Dr. OSTWALT strongly recommends, both on practical and on theoretical grounds, the use of periscopic glasses—that is to say, of menisci with the convex surface outwards and the concave next the eye in all myopic cases instead of the biconcave glasses in ordinary use. Dr. BERNHEIMER has availed himself of opportunities to study the origins of the third nerves after removal of the globe, with the result that he finds that the branch to the inferior rectus has a crossed origin, that the branch to the inferior oblique has the major part crossed, while that to the internal rectus is both crossed and direct and those to the superior rectus and levator palpebræ are direct.

Two very finely illustrated works have recently been published, both of which are highly creditable to their authors and useful alike to teachers, practitioners, and students. The first of these is the Ophthalmoscopic Atlas by Mr. ADAMS FROST, the ophthalmic surgeon to St. George's Hospital, which contains many well-executed chromo-lithographed plates of the fundus oculi and numerous woodcuts, whilst the accompanying letter-press gives the results of his large experience. The second is a

Atlas of External Diseases of the Eye by Dr. A. MAITLAND RAMSAY of Glasgow who has made an advantageous innovation by appending to the 30 full-page coloured plates, each presenting several diseases depicted with great accuracy and delicacy, a series of full-page photogravures which supply life-like representations of diseases not otherwise so well exhibited. A Student's Manual on Diseases of the Eye has also been published by Mr. JESSOP, one of the ophthalmic surgeons to St. Bartholomew's Hospital.

In accordance with the general principle of evolution, and just as the modern surgeon is the outcome and higher phase of the barber-surgeon, so the Spectaclemakers' Company are desirous of blossoming into a scientific craft, or at least of introducing scientific knowledge amongst the highly intelligent artisans in their workshops, and have instituted a system of examinations which will probably have a beneficial effect for the public by causing ophthalmic surgeons to bestow their utmost care and pains on the cases of refraction which come under their charge, knowing that in the skilled optician they will have a keen critic well acquainted with the properties of lenses and prisms and accustomed to the most precise and delicate work. The optician's diploma question seems to have aroused more interest in America than in this country, perhaps owing to the more highly strung nervous systems of the Americans leading them to seek relief from glasses in conditions which would be borne without complaint in England. Hence a large number of ophthalmic surgeons have arisen and doubtless some clashing of interests occurs.

Here there is, we think, little chance of unpleasant friction between the surgeon and the optician. After obtaining his diploma—if the Spectaclemakers' Examination is conducted on the same lines as those mapped out by Dr. LINDSAY JOHNSON and his coadjutors in the first examination which has just been held—the optician will be a highly instructed and competent man. The ophthalmic surgeon must be content to know that some of the patients who would have applied to him have gone to the optician; but, on the other hand, the optician will with larger information recognise that there are numerous cases which require a different kind of knowledge from that which he possesses and he will, if he be wise, transfer them to the ophthalmic surgeon. There will be no loss on either side and the patient will benefit, which, after all, is the result to be achieved.

Forensic Medicine.

The year has been memorable in the annals of Forensic Medicine chiefly on account of the unprecedented number of prosecutions of persons charged with having attempted or procured criminal abortion. It is sad to contemplate that in several instances the accused has been a qualified or formerly qualified medical man. It was high time that the law should be set rigorously in motion since there was overwhelming evidence that the odious crime was practised with alarming frequency. JAMES CHARLES ADY was convicted at the Central Criminal Court and sentenced to seven years' penal servitude for having attempted to procure abortion and for conspiracy with a man named TOMASSO. WILLIAM MAUNSELL COLLINS, a medical man who had previously been convicted for forgery (and whose name had been removed from the Medical Register) and who, there is reason to believe, was an habitual abortionist, was found guilty of the manslaughter of Mrs. UZIELLI and sentenced by Mr. Justice GRANTHAM to seven years' penal servitude. More recently JOHN LLOYD WHITMARSH was tried for the murder of a single woman named ALICE BAYLY by using an instrument and by the topical use of a mercurial salt. Mr. Justice BIGHAM who presided at the trial ruled that if the jury found that the prisoner had acted feloniously they must return a verdict of "Wilful murder," which they accordingly did and WHITMARSH was sentenced to death. The punishment was subsequently commuted to twelve years' penal servitude. We cannot help remarking the disparity between the sentence in this case and that of COLLINS. In THE LANCET of Dec. 17th will be found an account of the recent trial at the Kent assizes of Dr. DAVID WALLACE, a medical man in practice at Beckenham, who was indicted for having ravished a young woman named WARRILOW whilst in a state of unconsciousness and for having criminally induced abortion. Dr. WALLACE was acquitted of the latter offence and no evidence was offered by the prosecution on the former charge. The case illustrates the desirability of a medical man insisting on the presence of a third person when a particular examination has to be made on a female patient. Mr. JAMES BROWN, a physician and surgeon of Wigan, was charged with having unlawfully used an instrument and procured the abortion of JANE SHARPLES, aged twenty years. The case is remarkable in that Mr. BROWN was found chargeable by the coroner's jury with having by illegally procuring the miscarriage of SHARPLES contributed to the death of the child prematurely born. The magistrates dismissed the charge of inducing abortion. The Public Prosecutor preferred an indictment at the assizes, but the grand jury very properly, in our opinion, threw out the bill.

A woman named NANCY BEDFORD of Wigan was awarded six months' hard labour for having supplied medicine containing colocynth, aloes, and savin, and pills containing hellebore, aloes, and savin, with the intent to procure abortion. At Milford a woman named ANN COURTNAGE, aged twenty-four years, lost her life from septicæmia and peritonitis consequent on miscarriage brought on by taking in excess pills containing aloes (3½ grs.). The pills were contained in a box having the Government stamp upon it and were represented as having been supplied by a person who had been connected with a women's hospital. We would draw attention to Dr. LUFF'S evidence that where such drugs as were contained in these pills did procure abortion (and they generally failed) they nearly always procured it at the cost of the life of the woman. This case showed the necessity for legislative enactment forbidding the sale of substances injurious to health and dangerous to human life.

The cases of WHITMARSH and WARK who were sentenced to death for procuring abortion direct attention to the desirability of an alteration in the law either by making the crime one of manslaughter only or by recognising "degrees of murder." Though legally guilty of the crime of murder according to the statute the offence is in some sense extenuated by the fact that it is not committed with

malice aforethought and that there is no intent to take away life.

Before dismissing from notice this hideous blot on social life we may refer to the case of GOFF *v.* GOFF and GORDON in which Dr. GOFF sought a divorce from his wife. The respondent pleaded amongst other things that her husband had been guilty of cruelty—in fact, she practically charged him with having procured criminal abortion upon her. The jury found for the petitioner on all issues. To this verdict we gave unqualified assent.

Several trials for infanticide of newly born children by their mothers have ended in acquittal although there was the clearest evidence that the offspring were legally born alive and that their deaths were due to violence or neglect. Judges have naturally—and, as we think, rightly—a tendency to direct juries very strongly that they must be certain before convicting that the unhappy women were in such a state of mind at the parturient period as to render them criminally responsible. Something more than the alternative of "concealment of birth" is required to meet the occasion. Here, again, we are of opinion that an alteration in the law is called for.

It is difficult to move the legislative machinery or long ere this a more scientific and comprehensive definition of criminal responsibility would have been forthcoming. The old criterion of "the knowledge of right from wrong and of the nature and quality of the act" is still the legal test of insanity as bearing on criminal charges. Certain of our judges are disposed to give a wider interpretation of the law than is logically justified, but there are others who adhere to the terms of the statute with unflinching integrity. At the Gloucester assizes where a lad named ALBERT GRIFFITHS was tried for the murder of a farmer by stabbing him to death, although no premeditation was proved and although there was a strong presumption that the prisoner's mind was disordered Mr. Justice DAY refused to admit the evidence of an expert medical witness as to his opinion of the condition of mind of the accused at the time of the murder.

We have on many occasions reverted to the question of "professional secrecy," still a vexed question. We had occasion to express the belief that a medical man engaged by an employer to attend his employés has no right to divulge facts relating to the illness of the patient which he has become possessed of in his professional capacity unless the patient gives permission or that it is desirable in the public interest. A medical man cannot contract with an employer for other than attendance on the employé.

Several actions, criminal and civil, have been brought against medical men. Mr. L. V. PARRY of Birmingham was charged with a criminal assault on a woman who had been treated for hysteria. To the credit of the prosecution be it said the case was withdrawn when it came on for hearing.

Dr. H. COLGATE and Mr. G. A. SKINNER were sued for damages for "neligence in treatment and false imprisonment." The judge agreed with the verdict of the jury that the evidence utterly failed to support the allegation.

A remarkable trial which lasted six days in the Probate Court was that of KINGSBURY *v.* HOWARD. Dr. KINGSBURY who had attended the testatrix was left as her residuary legatee. It was sought to establish that by hypnotic suggestion Dr. KINGSBURY had induced the deceased lady to make her will in his favour. The jury found this not proved and the provisions of the will were undisturbed.

The Court for the Consideration of Crown Cases Reserved have unanimously decided that THOMAS GEORGE SENIOR was properly convicted of the manslaughter of his child through not having called in medical aid. It will be remembered that the prisoner belonged to the sect called the "Peculiar People." At the November sessions of the Central Criminal Court he was convicted of manslaughter. Mr. Justice WILLS who tried the case eventually passed sentence of hard labour for four months. The judgment of the higher criminal court is in accordance with common-sense and common humanitarian principles.

CAMILLA NICHOLLS was sentenced to seven years' penal servitude for the manslaughter of her servant EMILY JANE POPEJOY. The prisoner had habitually starved the girl and had mercilessly assaulted her on several occasions. As we wrote at the time, she was guilty of "criminal omission of duty and commission of illegal acts."

The most notorious case of poisoning which has happened during the year was that for which WALTER HORSFORD was convicted, sentenced to death, and executed for having murdered his cousin, ANNIE HOLMES, by giving her a huge quantity of strychnine. The motive was the utterly inadequate one of getting rid of a source of annoyance. HORSFORD had had immoral relations with the woman who represented to him her belief that she was *enceinte*—although such was not the fact.

It seems that in certain parts of the country it is a common practice for women to take diachylon to procure abortion. Dr. G. F. CROOKE has given us an exceedingly interesting account of a fatal case of acute lead poisoning. The woman had succeeded in inducing abortion by eating diachylon.

A man died at Aston from acute congestion of the lungs caused by inhaling nitric fumes. His occupation was that of dipping copper cups in dilute nitric acid. A child, aged eight years, succumbed to the effects of poisoning by privet berries. The wife of a medical man died from swallowing a solution of cocaine. The act seems to have been a suicidal one. A rare case of poisoning by paraffin oil happened to a child, aged fourteen months. One and a quarter ounces of the oil were swallowed and death ensued in one hour and fifty minutes.

We would draw attention to the presentment of the Public Control Committee of the London County Council to the Home Office in the matter of the enrichment of coal-gas with water-gas for public purposes. They recommended amongst other things (1) that non-carburetted and non-odorised water-gas should not be used under any conditions; (2) that not more than 25 per cent of water-gas should be used in the enrichment of coal-gas; and (3) that where the enriched gas is employed it should be under official supervision and inspection. We cordially endorse these recommendations seeing the great danger of poisoning by carbonic oxide.

Dental Surgery and the Practice of Dentistry.

The past year will always be memorable in the annals of dental surgery from the fact that for the first time in the

history of the profession a dental surgeon obtained a seat on the General Medical Council. The British Dental Association for some years has been bringing the claims of dentists for representation on the Council before the proper authorities and so persistent have been the efforts and so reasonable the request that it is not unnatural that Mr. CHARLES TOMES should have been appointed to the vacancy caused by the death of Sir RICHARD QUAIN.

During the year several papers have been published which have advanced the knowledge of dental pathology. Dr. ZNAMENSKY of Moscow, in a communication to the January and February issues of the *Journal of the British Dental Association*, recounted some interesting experimental investigations he had made on the pathology of erosion. Mr. STORER BENNETT endeavoured to repeat these experiments but in the majority of instances he was unable to achieve the same results as Dr. ZNAMENSKY. Although the results obtained by these investigators are so different, the manner in which the subject was approached is undoubtedly excellent and it is quite possible that by further repetition, modification, and development of the experiments in various ways substantial results may be obtained. A paper from the pen of Mr. A. S. UNDERWOOD on Erosion has also appeared and he has described certain minute defects in the structure of the enamel of teeth attacked by erosion. The pathology of dental cysts has been considerably advanced by the researches of Mr. J. G. TURNER. From a thorough microscopical examination of many specimens he has been able to show pretty definitely the development of these cysts from aberrant masses of epithelium met with in the alveolo-dental ligament. He has also demonstrated that the exciting cause which starts activity in these epithelial masses is septic matter from pulpless teeth. Mr. TURNER in the same paper described three specimens of gingival cysts and suggested that in all probability they originated from the masses of epithelium found in the substance of the gum and known as "glands of Serres." Mr. KENNETH GOADBY in a paper read before the Odontological Society has added to the knowledge of micro-organisms of the mouth, and Mr. DENCER WHITTLES claims to have found a micro-organism which he considers the cause of pyorrhœa alveolaris, but the details so far given by him are somewhat meagre.

A paper by Mr. HOPEWELL SMITH has thrown a good deal of fresh light on the Healing Processes of the Dental Pulp and an easy and exact way of estimating the amount of potassium sulpho-cyanide in the saliva has been introduced by Mr. H. ALBERT. Ankylosis of Teeth to the Jaws formed the subject of a paper by Mr. STORER BENNETT, and from the illustrations given there can be no doubt that under certain conditions ankylosis of teeth to the jaws may take place.

No special advance has been made in operative dental surgery. The use of crowns as a method of treating teeth much affected by caries has come into increased favour, while bridge work is being adopted with more caution and judgment. The conservative treatment of the pulp has attracted a fair share of attention due to the introduction of various preparations claiming to have as their active ingredient formalin. A plan by which the tedious processes of cleansing and filling pulp canals could be overcome would be a great step in advance not only to the patient but also to the operator, and although the methods of mummifying or preserving pulps have not proved constantly successful the prospect certainly seems encouraging, and with an increased knowledge of the pathology of the pulp and the actions of drugs on that tissue a satisfactory plan will no doubt be evolved in the near future.

The use of oxy-phosphate of zinc with amalgam has come into more general use and the experience of practice shows that it is possible to insert reliable fillings by this method. The prolongation of nitrous oxide anæsthesia has attracted much attention and the methods advocated by Dr. MCCARDIE, Mr. H. HILLIARD, and Mr. A. COLEMAN seem likely to supplant to a great extent the use of ether for dental operations. A smaller number of deaths has been recorded from chloroform used as an anæsthetic in dental practice. This is satisfactory and it is to be hoped that in the near future its use will be abandoned except under very exceptional circumstances.

The British Dental Association has continued to exert its beneficial influence on the profession and also on the public. The annual meeting at Bath was most successful, the papers read and demonstrations given being interesting and valuable. Under the name of "South Wales and Monmouthshire" a new branch has been added and the quite recently formed School Dentists Society may be also regarded as an offshoot of the Association.

Fair activity has marked the dental literary world. The fifth edition of "Tomes's Dental Anatomy" has appeared and an excellent little work on Dental Metallurgy by Mr. ERNEST A. SMITH has been published. Mr. E. W. ROUGHTON has written a useful manual on Oral Surgery, while Dr. G. BLACK'S well-known work on the Human Teeth has reached a further edition. Other books worthy of mention are "L'Art Dentaire en Médecine Légale," by Dr. OSCAR AMÆDO and Dr. W. C. BARRETT'S "Oral Pathology and Practice."

An interesting event in the social world has been the golden wedding of Sir EDWIN and Lady SAUNDERS and the occasion was taken by a few old friends for presenting an address in remembrance of the happy occasion.

The death roll is happily a small one. It includes Mr. SIDNEY WORMALD, one of the pioneers of dental reform, Mr. J. MAIN NICOL of Leeds, and Mr. MCADAM of Hereford.

Biology and Physiology.

The subjects of Biology and Physiology have been prosecuted with unabated ardour by a thoughtful band of men, one of the most conspicuous of whom—M. MAREY—has in an important memoir read before the French Academy of Sciences drawn attention to the necessity which is daily becoming more urgent of the adoption of some standard of excellence in the several instruments which are in common use in the laboratory. Many prolonged series of experiments have proved almost valueless, especially in those where graphic curves are represented owing to the unreliability of the apparatus employed. Such records are worse than

useless since they encumber the pages of journals with erroneous data which cannot be distinguished from those which are exact and at the same time constitute fruitful sources of waste of time, temper, and work. M. MAREY hints his regret that there is no common language in use amongst men of science, meaning probably that his own language is that which is best adapted to be a common medium of intercourse; but with the rival claims of English and German in the immense scientific literature they represent there would appear to be little chance that French would be accepted, clear and precise as it undoubtedly is. M. PERRIER in another carefully considered memoir read before the same distinguished body discusses the always interesting subject of the origin of the Vertebrata, and whilst on various grounds rejecting the Tunicate origin advocated by Professor HAECKEL, the descent through the balanoglossus maintained by Mr. BATESON, that through the crustacea by Dr. GASKELL, that through the arachnida by Dr. PATTEN, and others, holds that vertebrates are descended from the annelida through the amphioxus. The counter and well-maintained arguments of Dr. WALTER GASKELL in favour of his own views on this subject may be read in the April number of the *Journal of Anatomy and Physiology* for this year.

The Roentgen rays, as was to be expected, have been utilised in the service of anatomy. Both Mr. W. S. HAUGHTON and Mr. HAROLD STILES have taken instructive skiagraphs after injection of the blood-vessels in which, owing to the opacity of mercury to these rays, the position, and subdivisions of the arteries are rendered very conspicuous.

The Anatomical Society of Great Britain and Ireland has done good work by circulating amongst the teachers of anatomy a series of questions and comparing or tabulating the answers, too few, unfortunately, which have been returned. Some very useful facts have been thus ascertained which would probably otherwise have been lost. For example, to the question of the frequency of an opening between the right and left auricles at the seat of the fœtal foramen ovale statements of 399 observations were received of which it must be said to his credit that Dr. SEQUEIRA, the medical registrar of the London Hospital, contributed no less than 188; the collective answers showed that the defect exists to a variable extent in one out of every four persons examined and rather more frequently in females than in males.

The chemical side of physiology is being actively pursued by many chemists as the multitude of articles in HOPPE-SEYLER'S *Zeitschrift für Physiologische Chemie* and other journals sufficiently testifies. Such difficult subjects as the constitution of the simplest proteids, the products of disintegration of albumin in plants and in animals, the nature of the albuminous constituents of hæmoglobin, the formation of urea in the liver, the generation of fat from sugar in the animal body, and the like, are being daily attacked by competent men from whose researches it may reasonably be hoped that a clearer insight into the more recondite processes of metabolism than we at present possess will in due time be acquired.

The same may be said of the other great support of physiology—microscopic work. The beautiful execution of many of the plates in the *Quarterly Journal of Microscopical Science* and in the *Archiv für Mikroscopische Anatomie*—as, for example, those illustrating Mr. MINCHIN'S Memoir on Ascons and Mr. MORRIS'S Molluscs of the Great African Lakes and those of Dr. KOSTANECKI on the Fertilisation of the Ovum of Myzostoma, of Dr. DOGIEL on the Sensory Nerve-endings in the Heart and Blood-vessels of Mammals, and of Dr. FRIEDMANN on the Anatomy and Physiology of the Male Sexual Organs of Man with quadruple staining—leave little to be desired and are not only instructive in showing what excellent results have been obtained, but are suggestive of vast fields of research which have been as yet scarcely more than entered. A useful collection of references to the original papers describing upwards of 100 dyes is given in the *Archiv für Mikroscopische Anatomie* by Dr. K. TELLYESNICKI, and Dr. JOSEPH S. BOLTON gives the results of a searching examination into the nature of the Weigert-Pal method of staining. The chrome-silver method is strongly recommended by Mr. W. HUNTER of Aberdeen for the demonstration of nerve-cells.

The histology of the animal cell has received much attention. Dr. A. KOLOSSOW, by using a mixture of osmic acid and uranium nitrate as a fixative and employing various dyes, has established the existence of connecting processes extending between the protoplasmic contents of many forms of cell. The processes are generally very numerous and appear to be subservient to the conduction of impulses and of nutrient material. Such processes occur between the cells of the liver, pancreas, testis, ovary, thyroid body and other organs, and his observations have been repeated, confirmed, and extended by Mr. WALTER GARDINER. A continuity of living material is thus established not only in the several parts of the same tissue but of contiguous organs throughout the body and serves in some degree to explain the secondary effects which are exhibited by parts far removed from the primary lesion. The great complexity of the internal structure of the animal cell is also being rendered more apparent by the methods of treble and quadruple staining to which allusion has just been made. Dr. HANS HELD has given beautiful illustrations of this complexity in nerve cells and Dr. GUSTAV SCHLATER in the cells of the liver, the several parts being rendered conspicuous by their differing affinity for different dyes.

The chemistry and histology of the thymus, thyroid, parathyroid, and suprarenal bodies, with in some cases the effects of the intravenous injection of their watery extracts, have been carefully studied. Dr. P. LANGLOIS found that the suprarenal extract injected into the veins of rabbit and dogs disappears from the arterial blood in less than three minutes, the augmented blood-pressure returning to the normal and the liver playing the chief part in its destruction. Mr. VINCENT found that the watery extract of 60 grammes of fresh adrenals subcutaneously injected into dogs first excited, then paralysed, and finally killed them, with great fall of temperature. Dr. BORDIER, experimenting on rabbits, observed after injection of the extract of the adrenals rise of blood-pressure, slowness of pulse, and then arrhythmia lasting for half an hour. Several observers have called attention to the absence of any similar effects from the injection of the extracts of brain, muscle, liver, spleen, or kidney. A statement has recently been made by Dr. CH. BOUCHARD that both in man and the dog under certain conditions

increase of weight may occur without the ingestion of food. As much as 600 grains or considerably more than an ounce can thus be gained in the course of an hour. The fact is not quite so isolated as might appear at first sight, for jockeys in training have been known to increase in weight to a noticeable extent after the consumption of a little wine and some animals maintain their weight during hibernation. Dr. BOUCHARD'S experiments demonstrate that the increase in weight is due to the absorption or retention of oxygen in the system and this he considers to be associated with the imperfect oxidation of fat and the formation of glycogen. M. BERTHELOT, an accomplished chemist, sees difficulties in this view and admitting the fact attributes it to the partial oxidation of albuminoid bodies with formation of special products. In experiments on the movements of the stomach as seen by the cathodic rays MM. ROUX and VON BALTHAZARD found that in man, the dog, and the frog alike, when the stomach is about to evacuate its contents, the contraction begins about the middle of the great curvature, the wave passing rapidly towards the pylorus and this is succeeded by another deep depression, so that a kind of pre-pyloric antrum is formed. GRÜTZNER has demonstrated that fluids and solid particles, such as lycopodium spores, introduced into the rectum may wander upwards and may even reach the stomach in man and mammals. MM. DASTRE and FLORESCO, as the result of many analyses, show that the liver is the ferruginous organ *par excellence* in the invertebrata, though in vertebrata iron is certainly a constituent of the blood and of the splenic tissue. Dr. AITCHISON ROBERTSON has made an experimental inquiry into the salivary digestion of starch in simple and mixed diets and his experiments show clearly the deleterious effects of wines and spirits on the process. WEISS, supporting the statements of SEEGEN, shows that the minced liver of the rabbit is capable of forming sugar out of fat and the fatty acids. MM. KOLISCH and STEJSKAL find that the jecorin discovered by DRECHSEL very easily splits off a molecule of sugar and that this is a process which is actively taking place in diabetes, the jecorin probably existing in the blood in some kind of combination with albumin.

The destruction of some kinds of sugar when injected into the blood in 10 per cent. solutions is swift and complete whilst others when thus introduced into the system seem to be capable of resisting disintegration. Thus in the experiments of VOIT the monosaccharides grape sugar, sorbinose, and arabinose were rapidly broken up and in the case of grape sugar as much as 100 grammes could be injected with the re-appearance of less than 3 per cent. in the urine. On the contrary, with the disaccharides cane and milk sugar nearly the whole quantity injected was eliminated by the kidneys. Yet the disaccharides maltose and trehalose were largely destroyed. The trisaccharide raffinose was used up to the extent of 35 per cent., whilst the polysaccharide glycogen was completely destroyed.

The subject of the nervous system has been worked at by Dr. BURDON SANDERSON who has studied the electrical response to stimulation of muscle; by Dr. J. BERNSTEIN, S. AMAYA of Tokio, and Dr. F. SCHENK who have investigated the subject of negative variation of the nerve current under different circumstances; by Dr. F. B. HOFMANN who has described the influence of the vagus upon the heart; by Mr. B. T. TEBBS and Dr. PAUL MANS who give the innervation of the heart and of the aorta and intercostal arteries; by Dr. OTTO WEISS who has experimented on the excitability of a nerve in its course, showing that the excitability remains the same throughout its whole length; and by Dr. E. STEINACH whose conclusions have been corroborated by Dr. SZYMANOWSKI and are to the effect that the posterior roots of the spinal nerves contain viscero-motor fibres. Mr. BISHOP HARMAN as the result of numerous dissections has demonstrated that the caudal limit of the lumbar efferent visceral nerves in man is at the level of the second lumbar nerve. The insular district of the cerebral cortex in man and the man-like apes has been an object of special study by Professor D. J. CUNNINGHAM of Dublin, and Dr. F. W. EURICH has written a good article on the comparative anatomy of the neuroglia. The subject of muscle has been elucidated by Mr. PARSONS who delivered a course of lectures at the Royal College of Surgeons of England on the muscles of animals with special relation to human myology; by Dr. TAIT MACKENZIE in his article on natural selection as shown in the typical speed skater in the *Journal of Anatomy and Physiology*, which is illustrated by photographs of the professional champion, J. NILLSON, an American of Swedish parentage, of J. JOHNSON, late professional champion, and of the amateur champion, J. K. MCCULLOCH. A new theory of muscular contraction has been advanced by Mr. W. MCDOUGALL which is to the effect that contraction is due to the elimination of lactic acid in the fluid contents of the sarcomeres which occasions the passage of fluid into the sarcomeres from the sarcoplasm.

The mode in which experimental physiology may correct the impressions derived from clinical observation is well shown in the explanation it affords of the phenomena of incontinence of urine and fæces, which have been generally regarded as indicative of destructive lesion of the lumbar region of the spinal cord; but MM. ARLOING and CHANTRE have removed the whole lumbar segment of the cord in dogs, with the result that in the course of a short time the animals recovered the power of retaining and of evacuating at will, though, perhaps, not completely the contents of the rectum and bladder. They attribute this remarkable circumstance to the elasticity of the sphincters which they have demonstrated to be fully capable of effecting the retention of these excreta. Hence, when incontinence occurs there is reason for believing that some stimulation of the expulsive agencies is being exercised. They found also that unilateral section of the nerves to the sphincters was quite without effect.

The observations of several physiologists seem to show that the fæces do not consist in more than a small proportion of the remains and indigestible residue of the food, but that they are chiefly the products of intestinal secretion and excretion. Thus M. KERMAUNER has shown that when meat is ingested in the adult only a very small proportion is discharged in the fæces, whilst the total nitrogen excreted is much larger, varying from 4 per cent. to 5·5 per cent., and both PRAUSNITZ and TSUBOI have arrived at the same conclusion from their independently conducted experiments.

Residence in high altitudes being constantly recommended for patients suffering from anæmia it may be worth noting that the benefit obtained is apparently not owing to any increase in the amount of hæmoglobin, for in some experiments made by Dr. P. GIACOSA on rabbits, dogs, and himself during a residence at heights of about 8000 and 15,000 ft., though variations occurred at intervals no increase was observed in the quantity of hæmoglobin contained in the blood.

Amongst the books which have been published in the course of the year attention may be called to "The Text-book of Physiology," by Professor E. A. SCHÄFER, aided by several distinguished collaborators; to "The Text-book of Zoology," by Dr. T. JEFFERY PARKER and Dr. WILLIAM A. HASWELL; to the "Anatomie du Système Nerveux de l'Homme," by A. VAN GEHUCHTEN; and also to the new edition of STEWART'S "Human Physiology"; to the successive parts of the fine "Dictionnaire de Physiologie," by RICHET and others; to the first part of DOYON and MORAT'S "Traité de Physiologie," embracing the subjects of nutrition and calorification; and to STÖHR'S "Text-book of Histology," translated by Dr. ALFRED SCHAPER of Boston, U.S.A.

Anæsthetics.

The increased interest which has of late years been taken in the study of anæsthetics has during 1898 been more than maintained if we may judge by the large number of papers published and of researches undertaken in elucidation of the subject. Abroad especial attention has been directed towards means whereby local as opposed to general anæsthesia can be effectually obtained. In Professor SCHLEICH'S infiltration method the tissues operated upon are made insensitive by injecting a highly diluted solution of cocaine in normal saline. The injection, made first endermically, subsequently hypodermically, and eventually into the deeper structures, produces an œdematous and anæsthetic state of the tissues acted upon. The nerve endings become anæsthetised and as long as the effect lasts the parts remain insensitive. The initial pain of the first few punctures is removed in some cases by freezing the skin and in others by painting with a solution of cocaine, but DREYFUS[1] has used orthoform after infiltration as it tends to intensify and prolong the anæsthesia. The plan of SCHLEICH has now been employed for both minor and major operations, many of the latter of the first magnitude. As pointed out by KRECKE, however, the method has its limits. In the first place the patient is not always able to maintain his calm self-control throughout a prolonged operation, even although actual pain is absent. The tissues when infiltrated lose much of their natural appearance, and it is not easy to decide the line of demarcation between disease and health. The most scrupulous care is requisite to sterilise the solutions employed and to avoid forcing *materies morbi* from the region infiltrated into the subjacent zone. TITO COSTA, who has employed the Schleich plan, finds heated solutions act far more rapidly than if injection is made of cold solutions. During the year the infiltration methods, both that of SCHLEICH and that of RECLUS, have been modified by the use of other anæsthetics than cocaine. Thus tropacocaine and eucaine with and without minute quantities of morphine have been tried and found successful. Orthoform, referred to above, has found some favour. Its insolubility restricts its use save as a powder, although HIRSCHBRUCK has used it for injection, employing a 3 per cent. strength suspended in water.

The employment of nitrous oxide in the minor operations of surgery, excepting in dental practice, has never been extensive, probably owing to the evanescent and restless character of the narcosis it produces. These disadvantages have been in some way removed during the past few years. Within the last year methods, or perhaps more accurately variants upon older methods, have been introduced whereby nitrous oxide given alone or mixed with definite proportions of oxygen can be given for prolonged periods even although the mouth be the seat of the operation. Thus Mr. ALFRED COLEMAN covers the mouth and gives the gas solely through a cap which fits over the nose, Mr. HARVEY HILLIARD relies upon a nasal catheter for maintaining anæsthesia after the usual method of induction, while Mr. COXON and Mr. MACCARDIE warm the gas-supply and maintain the anæsthesia after removal of the face-piece by means of a buccal tube which conducts gas into the air-passages. The use of nitrous oxide with oxygen for operations lasting for periods of twenty minutes or more has received some attention, and it is claimed that the plan possesses special advantages over the use of the alcoholic narcotics.

The mortality under chloroform and the frequent pulmonary troubles following ether led SCHLEICH to attempt to obtain an anæsthetic with a boiling-point which was approximately of blood temperature so as to enter and leave the lungs without, on the one hand, accumulating in the circulation or, on the other hand, leaving the tissues still sensitive. With this view he employed a mixture of sulphuric ether diluted with petroleum ether, and chloroform in three proportions. The solutions so arrived at had definite boiling-points of 38°, 40°, and 42° C. and were to be used respectively for slight, medium, or deep anæsthesia. SCHLEICH himself, WILLY MEYER, MADURO, GARRIQUES, EMIL MAYER, and others affirm that perfect anæsthesia resulted from such solutions, while no after-effects were produced even in patients the subjects of heart, kidney, or pulmonary disease. RODMAN, however, after a prolonged use of these solutions, came to an opposite conclusion. He not only found heart failure, and renal and pulmonary complications accompany their use, but averred that the sickness, headache, &c., during recovery were as bad as with ether or chloroform. The valuable tables collected by GURLT, dealing with the mortality under anæsthetics, show curious figures which of course refer only to Germany. It is still a reproach to Great Britain that no general statistical record is kept of the enormous number of anæsthetics given in the United Kingdom. The statistics of GURLT now extend back to 1891 and show from 1895–97 a record of 27,025 cases of chloroform narcosis with 29 deaths, 19,875 cases of ether inhalation with 3 deaths, and 4927 cases of Billroth's mixture. In the period 1891 to 1897 the death-rate is 1 in 2039 for chloroform, 1 in 5000 for ether, 1 in 5228 for bromide of ethyl,

[1] Münchener Medicinische Wochenschrift, p. 527.

1 in 7594 for the mixture of chloroform and ether, and 1 in 213 for pental. He notes that the deaths due to chloroform are annually increasing and are mainly due to circulatory failure, while fatalities from ether are chiefly due to pneumonia after the operation. Italy returns a record of 53,972 cases of chloroform inhalation with 13 deaths and of 1 death in 2802 cases in which cocaine was used. These statistics include two years. Some important work in the field of the physiology of anæsthesia has been done during the year. Two observers, Dr. W. H. THOMSON and Dr. R. C. KEMP, have shown that ether is distinctly more dangerous to the epithelium lining the glomeruli of the kidneys of dogs than is chloroform, although ether is markedly less liable to lower the blood-pressure. Their examination of SCHLEICH'S mixtures referred to above and the A.C.E. mixture lead them to consider such mixtures in no way safer as regards the kidneys and circulation than ether or chloroform. Their results in the case of ether showing rapidly produced albuminuria and suppression of urine are not borne out by clinical investigations. LEGRAIN examined the urine of 54 persons who took chloroform and he found 10 cases of albuminuria with 12 out of 41 cases of etherisation. His experiments on dogs gave similar results and led him to believe that chloroform produced more lasting effects upon the renal structures.

PARASPORO'S research on the results following the repeated daily inhalation of chloroform or ether by dogs is one of importance as showing that parenchymatous degeneration and necrotic processes follow the prolonged administration of these narcotics. These experiments appear to have a close connexion with those of THIEM and FISCHER, who found that fatty degeneration followed chloroformisation. It is at least suggestive that DESGRÈS and NICLOUX found that potassium salts or alkalies in the presence of chloroform lead to liberation of carbon monoxide and, further, that in alkaline blood a like decomposition takes place. The fact that cholemia has followed and has proved fatal after chloroformisation if not coincidental is at least worthy of note, as CHIARLEONI has pointed out. The râles occurring during and after ether inhalation are commonly imputed to bronchitis. In contravention of this HÖLSCHER[2] has undertaken experiments which lead him to believe that ether does not act as an irritant to the mucous membrane of the respiratory tract. The râles are due at first to aspiration of saliva and mucus from the mouth, due to local irritation, into the trachea and subsequent bronchial trouble is in its turn due to further aspiration of these secretions into the bronchi. Thus if buccal secretions are excluded ether will cause no bronchitis. It can hardly be said that the vexed question of the action of chloroform upon the organism has been settled. The researches of WALLER upon nerve structure have taught us that nerve like other protoplasm is harder to kill with ether than with chloroform, at least at the time of administration. No doubt now exists that chloroform will kill under any circumstances if a large enough dose enters the circulation, whether it be at one time, as in the case published by Lieutenant-Colonel LAWRIE, R.A.M.C., in which the patient took an overdose during struggling and but for the prompt action of the surgeon might have died, or by slow accumulation in the blood. Equally certain is it that the blood-pressure falls under chloroform and that this is a source of danger, since the peril lies not in whether more chloroform is then taken in but in the quantity of the anæsthetic already in the blood. HILL'S researches pursued and confirmed during the year appear to prove this. WOOD has already pointed out that all the blood pressure tracings taken during chloroformisation have shown severe falls of pressure. The respiration, he urges, fails before the heart because cerebral anæmia is the first factor in the onset of this toxæmia; the coronary circulation, being at a lower level, proceeds for some seconds later, due to its more advantageous position.

Dr. BOWLES, whose papers on Resuscitation have thrown so much light on the subject, has again pointed out that the Sylvester method of artificial respiration is not the one which gives the best means of ventilating the lungs and removing air saturated with chloroform. Dealing with the dangers of impure anæsthetics it has been shown that spasm during anæsthetisation as well as cough and bronchitis may and do follow the respiring of impure chloroform. During the past year the matter has been painfully emphasised by the report of more than one death from inhaling chloroform the vapour of which had escaped into a room where lamps were alight. The carbonyl chloride formed, which splits up into carbonic and hydrochloric acids in moist air, has been shown by Dr. SEBASTIANO FAMULARI[3] to be extremely dangerous when inhaled. RAMSAY has further pointed out before the Society of Anæsthetists of London that carbonyl chloride is formed when chloroform is exposed to light in the presence of air. The paper of Dr. FAMULARI enters very fully into the chemistry of the matter.

Prophylaxis against accidents under and consequent upon anæsthesia has received much attention and various fresh agents have been suggested for use in chloroform toxæmia as correcting the effects on the respiration and blood-pressure. Hydrocyanic acid has been recommended as a direct stimulant to respiration by Professor HOBDAY, and MAGNKOWSKY has resorted to freshly prepared and sterilised suprarenal extract as a powerful circulatory stimulant, although from its very power it is one to be used with discretion. HENSEN'S researches upon uterine contractions under anæsthetics favour ether, but our space does not permit more than passing mention of his important communication.

Among the publications dealing with anæsthetics issued during the year may be mentioned the following:—H. Laing Gordon: Sir James Young Simpson and Chloroform. Transactions of the Society of Anæsthetists, London. Briegleb: Die Schleich'sche Infiltrations-Anästhesie und der practische Arzt (*Therapeutisches Monatsheft*, Berlin). Für Schleich? (*Medicinisch-Chirurgisches Centralblatt*, Wien). Grube: Zur Lehre von der Chloroform-Narkose (*Archiv für Klinische Chirurgie*, Berlin). Honigmann: Zur Lokalanästhesie (*Centralblatt für Chirurgie*, Leipzig). Vidal: Influence des Inhalations chloroformiques sur la Résistance de l'Organisme aux Infections (Compte rendu de la

[2] Archiv für Klinische Chirurgie, Band lvii.

[3] I Prodotti di Decomposizione del Cloroformio. Il Policlinico, Roma, Giugno, 1889.

Société de Biologie, Paris); and Influence des Inhalations chloroformiques sur les Phénomènes chimiques de l'Organisme (Physiologie. Travaux du Laboratoire de C. Richet, Paris). Hänkel: Handbuch der Inhalations-Anästhetica (Leipzig). Berdach: Beitrag zur Anwendung concentrirter Cocain-Lösungen (*Wiener Klinische Wochenschrift*). Bouchard: De l'Anesthésie par l'Éther (*Journal de Médecine de Paris*). Kinscherf: Die kurze Aether-Narkose (*Vereinsblatt für Pfälzer Aerzte*, Frankenthal). De Saint Martin: Les Inhalations de Chloroforme, déterminent-elles la Production d'Oxyde de Carbone dans le Sang? (Compte rendu de l'Académie des Sciences, Paris). Sudeck: Ueber Lokalanästhesie (*Deutsche Medicinische Wochenschrift*, Leipzig). Strassmann: Der Tod durch Chloroform in gerichtsärztlicher Beziehung (Berliner Klinik). Müller: Anästhetika (Berlin). Chirvinski: Farm. Vestnik (Mosk.). Methane Products as Anæsthetics. Spellanzon: Della Chloronarcosi nei Cardiopatici (*Rivista Veneto di Scienza Medica*, Venice). Chiarleoni: Colemia da Cloroformio come Complicanza delle Celiotomie (*Chirurgia Moderna*, Pisa). Poroschin: Zur Frage über die pathologisch-anatomischen Veränderungen in durch Chloroform-Narkose bedingten Todesfällen (*Centralblatt für die Medicinischen Wissenschaften*, Berlin). Schleich: Schmerzlose Operationen vertliche Betäubung mit indifferenten Flüssigkeiten (Berlin). Hölscher: Experimentelle Untersuchungen über die Entstehung der Erkrankungen der Luftwege nach Aethernarkose (*Archiv für Klinische Chirurgie*, Berlin).

The Mirror of Hospital Practice.

Among the many interesting and instructive cases which have appeared during the past year in the Mirror of Hospital Practice there are probably none of more importance than those illustrating the present treatment of intussusception. Of all the forms of intestinal obstruction intussusception may be said to take the first place in order of frequency, for it occasions the obstruction in about one-third of the cases. A very slight knowledge of the pathological anatomy of the disease would suggest the advisability of attempting reduction by means of the injection of water or other liquid into the bowel, and the method has without doubt in numerous cases been followed by recovery, and it is equally true that inflation by air introduced sixty years ago by Mr. GORHAM has proved successful in many instances. But neither injection nor inflation is free from danger. The over-distended bowel has in several instances given way and death has resulted. These methods, moreover, by no means rarely fail; when the air- or water-pressure has been pushed to the limit of safety, or even beyond, the invaginated bowel still refuses to return. This will occasion no surprise to anyone who has experienced the difficulty which so often exists of reducing an intussusception after opening the abdomen. The only hope which then exists is to be found in a laparotomy; but can we wonder that a child—for 95 per cent. of these cases occur in children—who has for several, often many, hours been afflicted with so depressing a condition and who has then been subjected to a forcible distension of the large intestine fails to survive the added shock of an abdominal section? It is unreasonable to expect it, yet the chance of recovery would assuredly have been greater if no inflation had preceded the laparotomy. It must further be borne in mind that no intussusception which is entirely confined to the small intestine can ever be benefited in the slightest degree by distension of the colon. To us the conclusion to be drawn appears inevitable. Every case of intussusception should undergo a primary laparotomy—that is to say, no injection, inflation, or manipulation should precede the opening of the abdominal cavity. The earlier the operation the better will be the prognosis, for the longer the duration of the intussusception before operative interference the greater will be the mortality. In comparing the statistics of inflation with those of intussusception we must not take the figures of those who always inflate before operating, for then only the more severe cases will have been operated on and the mortality will assuredly be worse in cases operated on than in those which were treated only by inflation. The statistics which should be compared are those relating to the cases which were treated by distension on the one hand and those in which a primary laparotomy was performed on the other. The results even now are good and they will improve when the general public appreciate more fully the great dangers of intussusception. Of the 6 cases of this condition which we have recorded in the Mirror during the year 5 patients recovered and 1 died, but in the fatal case the death occurred within twenty-four hours of the onset. In one of the successful cases the patient was only six months old.

We have been able to publish 5 cases in which a laparotomy was performed for perforation of a gastric ulcer. Four of these patients recovered and only 1 died. For recovery to occur after operation for this severe lesion the most essential condition is that not many hours should have elapsed between the perforation and the laparotomy: it may fairly be said that the probability of recovery if more than twenty-four hours intervene is very small indeed. In one of the successful cases 2 perforations were discovered.

Up to a very recent date a large class of cases was utterly beyond either medical or surgical skill: the patients were those in whom septic micro-organisms, especially streptococci, had passed into the blood-stream — cases of true septicæmia. None of the usual antiseptics can be of any use; even if the original wound might be made completely aseptic, the germs which are already absorbed are fully capable of causing death. So short a period of time has elapsed since anti-streptococcic serum was introduced that it is not possible to speak definitely on its value. There are several difficulties in the way. In the first place, only those cases should be considered in which bacteriological proof was obtained that the streptococcus was present in the blood, and, in the second place, the serums in use differ very widely in their anti-streptococcic powers. We have recorded three cases during the year in which the serum was employed. In one of the cases erysipelas was present, and with it was some acute endocarditis; after the injection the temperature fell rapidly and the endocardial signs greatly diminished. In the second case puerperal septicæmia was present and bacteriological examination of the blood and

urine proved the presence of streptococci, and the recovery seemed almost certainly to be due to the serum. Unfortunately in this case severe symptoms were apparently produced by some of the injections and the serum was found to contain living staphylococci. In the third case much improvement was apparently due to the serum. We must hope in the future for more bacteriological confirmation of the streptococcic origin of the septic symptoms present before this treatment can be put on a sure footing.

The closely allied subject of the employment of antitoxic serum in tetanus has been illustrated by 3 cases in the Mirror. In the laboratory tetanus antitoxin has a very definite action in checking the progress of the disease in animals, but in man the results have hardly come up to what we were apparently justified in expecting; yet we must not relinquish this mode of treatment, for it is undoubtedly of value and we may look for better results when the preparations of the antitoxin are more uniform in strength. It can hardly be said at present that the general mortality from tetanus has been materially lowered by the serum treatment. It seems, however, certain that the earlier the antitoxin is injected the more efficacious it is. We have printed two cases of great interest in which foreign bodies which had been swallowed were removed from the stomach. In the first case, which was under the care of Mr. JOHN MORGAN, a young man had swallowed numerous metallic bodies during an attack of acute mania; some had been passed with the motions, but epigastric pain and the formation of a swelling in the same region pointed to some complication resulting from the continued residence of one of the foreign bodies in the stomach. A skiagram gave no indication of the presence of any metallic substance. At the operation, however, a piece of steel stay-busk about 4 in. long was discovered immediately beneath the abdominal wall lying in a cavity formed by peritoneal adhesions. The absence of any sign on the skiagram is probably to be explained by the fact that the piece of steel was vertical to the photographic plate. In the second case, which was under the care of Dr. PERCY POTTER, the presence and position of the foreign body, a steel button-hook, were very definitely shown by the Roentgen ray picture, and it was easily removed by a gastrotomy. In both cases the patients recovered.

Perhaps the most dangerous complication of an operation for the removal of an ovarian cyst is the tearing of a piece of the bowel in separating an adhesion. In two instances under the care of Dr. LEWERS which we recorded this serious accident happened, but the cases served well to illustrate the fact that prompt recognition and careful treatment of the lesion suffice to lead to an uneventful recovery.

We know so little of the real cause of the formation of cheloid that the case under the care of Mr. GOLDING-BIRD was of interest, and especially important was the fact, mentioned in his remarks on it, that in a district in British Central Africa every wound is likely to become the seat of cheloid. This evidence in favour of a special poison, probably microbic in nature, is very noteworthy.

Dr. WILLIAM DUNCAN described a unique case. A woman, thirty-three years of age, had had a vesico-uterine fistula for about six months and he determined to fix the vaginal portion of the posterior lip of the cervix into the opening in the bladder and thus close the fistula at the expense of diverting the uterine canal into the bladder. This operation was performed successfully and a month later both ovaries and tubes were removed. When she left the hospital three months after admission the patient was able to hold her urine for eight or nine hours and the vagina was quite free from moisture.

An interesting example of Richter's hernia, or partial enterocele, which was under the care of Mr. STANMORE BISHOP, was published. The constricted portion of bowel gave way into the scrotum but no peritonitis occurred beyond that required to fix the bowel in position. The operation performed to remedy the fæcal fistula which resulted was completely successful.

The general opinion of surgeons has always been decidedly opposed to simultaneous ligature of the popliteal artery and vein and the chance of gangrene has been considered to be so great that amputation at the knee-joint has been looked upon as a preferable operation. Still, a few cases have been recorded in which no gangrene followed the double ligature and we published two similar cases; in one under Mr. EDMUND OWEN'S care the vessels had been accidentally wounded; in the other Mr. G. P. NEWBOLT tied both vessels in order to cure an arterio-venous aneurysm which had formed. No gangrene followed in either instance. In all 17 cases have been recorded and in only one did gangrene result. Transperitoneal ligature of the iliac arteries is gradually becoming the operation which is to be preferred. This operation is already acknowledged to be the best in the case of the common and internal iliacs, but there is room for a little more difference of opinion with regard to the external iliac artery, though we believe that for this vessel also it will ultimately come to be the ordinary method. Mr. FREDERICK PAGE has recorded a case which illustrates well the simplicity of the operation. The value of intravenous injection of normal saline solution is generally appreciated nowadays and so much is this the case that transfusion of blood is hardly ever performed. A very striking example of the rapidly beneficial results of this operation is to be found in a case under Mr. BOYCE BARROW which we published. On one occasion five pints and on another two pints were injected with remarkable improvement in the general condition; in fact, at one time immediately before an injection the patient seemed to be moribund.

The Naval and Military Services.

The past year has not only been an eventful one as far as the naval and military services are concerned, but it has been crowded with incidents some of which are historical and destined to have a far-reaching tendency. If a country may be said to be blessed whose annals are inglorious there would be some difficulty in selecting one entitled to that blessing at the present time. We have been living amid wars and rumours of wars on all sides and the year that is past has been notable from the fact that it had no "silly season," for it was at the time when there is usually a dearth of exciting political intelligence that the journals of Europe, America, and the East were heavy-laden with news of grave and varied import. In India we have had a big war on the North-West frontier, in

addition to the continued and increased prevalence of plague with its serious effect on the commercial prosperity of that country and the grave risk of political disaffection on the part of the native population, to say nothing of the enormous amount of extra labour and responsibility these occurrences entailed upon all classes and not least upon the medical services of that country. Nor can it yet be said of India that there is any promise of "the land having rest" for some years to come. In Egypt we have had the Soudan Expedition, now happily terminated by the victories at Atbara and Omdurman and the annihilation of the Khalifa's cruel and oppressive rule. This was speedily followed by the Fashoda incident with its attendant complication with France. There have also been explorations, complications, and fighting in other parts of the African Continent, as well as at Crete and in China. The officials of the Foreign Office, the Admiralty, and the War Office have had ample employment, notwithstanding which, we are glad to say, the War Minister has found time to introduce a wise and comprehensive measure effecting the welding together of the Army Medical Service into the Royal Army Medical Corps, in addition to redressing a number of grievances of which the members of that branch of the Army Service legitimately complained. It was a happy inspiration of Lord LANSDOWNE to announce at the Lord Mayor's dinner to the medical profession in May last his intentions regarding the Army Medical Service and to foreshadow the Warrant in a handsome and outspoken speech appreciative of the services of army medical officers and those of the profession generally to the public service, and it is needless to add that the speech gave great and general satisfaction. Turning to other parts of the world we have had the Spanish-American war with its striking and dramatic incidents and results, the full effects of which have yet to be realised and harvested. That these will be for the good of humanity and the world at large cannot be doubted; and we have only to take account of the inimical feeling and even consternation with which the drawing together of the American and British nations is regarded by foreign Powers to see that they, at any rate, realise the meaning and import of such a combination. We heartily congratulate the United States on the successful termination of that war, believing as we do that its results will be favourable to the freedom of the oppressed and eventually turn out to be for the benefit of all concerned. The year 1898 is the most eventful to the American Republic since the end of its civil war. For the first time the United States Government finds itself face to face with the problem of dealing with foreign possessions outside its own continent. Considering that a commission is inquiring into the causes and extent of the alleged breakdown of the sanitary and medical arrangements of the late war, for which the United States was apparently unprepared, there is no need to dwell further upon the subject now; but we may add a word to the effect that it is only by the organisation and perfecting of all that appertains to a medical service in times of peace that successful results can be attained in time of war. There is no royal road to success in this respect as this and other countries have had to learn by bitter experiences in the field.

We have endeavoured to keep our readers *au courant* with the medical history of all the campaigns and expeditions in which this and other countries have been engaged. Our information in this respect, and especially in regard to the big and very difficult campaign against the frontier tribes on the North-West of India, has been, we believe, both full and reliable. As regards the Soudan it is worthy of record that Lord KITCHENER of KHARTOUM, in his military dispatch after Omdurman, spoke in the highest terms of commendation of the "unremitting energy, untiring zeal and devotion to their duty of the entire medical staff."

It has been our pride and satisfaction to chronicle in connexion with these campaigns the conduct and devotion of medical officers and the rewards which have been conferred upon a number of them for their gallantry and distinguished services in the face of the enemy. In these respects no branches of the naval and army services have done better, or have had a longer list of names mentioned in despatches or of Victoria Crosses and Distinguished Service Orders, than the various medical services. It was only the other day that Her Majesty added another to the list by conferring the decoration of the Victoria Cross on Surgeon W. J. MAILLARD, M.D., of the Royal Navy, for his conspicuous bravery displayed in September last during the outbreak at Candia.

During the year the autumn manœuvres have taken place on a far larger scale than has hitherto been the case. It is almost superfluous to remark that if the Royal Army Medical Corps is to be really effective it must rehearse in times of peace the duties which it will have to put in practice in the field during war and these military manœuvres afford the only opportunity of doing this.

Nor should it be forgotten that the QUEEN, in conformity with the compassionate interest which HER MAJESTY has always manifested in the distress of any of her subjects, has exhibited a lively sympathy with her sick and wounded soldiers invalided from the campaigns on the north-west of India and from the Nile Expeditionary Force in Egypt by repeated visits to Netley during the past year.

The Warrant of 1898 constituting the Royal Army Medical Corps appeared in THE LANCET of July 9th last. It is a satisfactory warrant and we have no hesitation in saying that the Army holds out a good prospect for medical candidates for the Royal Army Medical Corps. We have so recently dealt with the memorial of the Royal College of Surgeons of Edinburgh to Lord LANSDOWNE regarding the changes which might still be advantageously made in the regulations for competitive entrance examination into the corps that it is needless to refer to the matter beyond saying that we agree with the College in their opinion that too much importance is attached in those regulations to elementary subjects and too little to the practical and clinical work which now occupies the latter years of professional study. That some change will hereafter be made in this direction we do not doubt. We also hope to see some alterations carried out in regard to the present rates of pay and allowances of officers of the Royal Army Medical Corps serving in India.

With regard to the changes in the services, the Naval Medical Department has during the year had a new Director-General in the person of Sir HENRY F. NORBURY, K.C.B. Surgeon-General CLEGHORN having retired from the post

of Director-General of the Indian Medical Service and Sanitary Commissioner with the Government of India has been succeeded in these appointments by Surgeon-General R. HARVEY, C.B. Surgeon-General A. A. GORE, Principal Medical Officer of Her Majesty's Forces in India, who retires this month, is to be succeeded by Surgeon-General W. TAYLOR, C.B., who was the Principal Medical Officer of the Nile Military Expedition during the late campaign.

The Indian Medical Service has undertaken and discharged a large amount of work and responsibility during the epidemic of plague in that country, in addition to its labours in the field in connexion with the expeditions on the North-west frontier, where several of the medical officers greatly distinguished themselves and all did excellent work. The new Army Warrant has, of course, been made applicable to this service as regards the rank and titles of medical officers, but its name—Indian Medical Service—has been retained, carrying with it as it does so many honourable traditions.

We regret to add that death has as usual thinned the ranks of the different medical services. When death comes to men who have done their work and retired this is neither unexpected nor to be lamented; it is when it cuts off relatively young and promising men while their careers are still unfulfilled that death is so regretful and occasionally so pathetic. It would be impossible as well as wearisome to enumerate all our losses in this direction. But we may mention the names of Inspector-General T. R. PICKTHORN, Deputy-Inspector-General LEONARD LUCAS, Deputy-Inspector-General G. J. KELLIE, and Deputy-Inspector-General E. W. BAWTREE, Fleet-Surgeon C. KNOX ORD and Fleet-Surgeon C. A. MACAULAY of the Naval Medical Service; of Surgeon-General MACLEAN, C.B., LL.D., M.D. Edin., whose name was so long associated with the Army Medical School at Netley; of Inspector-General JOHN MURRAY; of Deputy-Surgeon-General PARTRIDGE, who was an excellent surgeon and did good work at the College Hospital in Calcutta; and of Surgeon-General F. M. CLIFFORD and Surgeon-General W. JOHNSTON,—all of the Indian Medical Service. The Army Medical Service has lost during the year Surgeon-General S. CURRIE, C.B., Surgeon-General S. FULLER, Surgeon-General ALEXANDER SMITH, C.B., Surgeon-Major-General JAMES INKSON, and several medical officers of other ranks.

Chemistry.

Chemists this year would seem to have paused in their practical labours and to have rested awhile, so to speak, in order to ponder over the significance of the results which their arduous work has presented to the world during the last decade. This, at any rate, seems to have been the course adopted by that brilliant investigator, Sir WILLIAM CROOKES, who in his remarkable address at the meeting of the British Association at Bristol sounded a distinct note of concern as to the future of the world's wheat supply. He feared that the future demands of an ever-increasing population would sooner or later not be supplied by the ordinary methods of agriculture, the soil would be exhausted of its nitrogen, and he suggested that the teaching of the chemical laboratory would furnish the only means of escape. The question that confronts us is how to compensate for the exhaustion of the world's stock of fixed nitrogen, a matter in Sir WILLIAM CROOKES's opinion of far greater importance than the exhaustion of British coal-fields. He has been therefore led to suggest that the nitrogen of the air should be turned to account by burning it into nitric acid by the agency of the electric discharge. This conversion might be effected, he thought, by the utilisation of some colossal natural force as by the falls of Niagara. On the other hand, those veteran agricultural chemists, Sir HENRY GILBERT and Sir JOHN LAWES, maintain that there is no ground for such fears. In their exhaustive experiments they have shown that the wheat plant can flourish on the land again and again without manuring, and they show that nitrate may be derived from the soil even at a depth of nearly 9 ft. There is little doubt that nature herself provides a means, though it be a slow process, of fertilising the land. Again, we know how certain plants are nourished by direct assimilation of free nitrogen through the nodules on the roots and probably by microscopic agencies. Chemistry in its relation to food supply would seem to be the subject also underlying the announcement made during the year by Dr. LILENFELD at the International Congress of Applied Chemistry at Vienna to the effect that he had discovered the synthesis of albumin. The announcement created considerable excitement in chemical and physiological circles, but was very generally discredited, we ourselves being amongst the incredulous. Nor has the subsequent publication of the results conveyed any assurance that the synthesis of either albumin or peptone has been accomplished. Still there can be little doubt that some progress in a very important direction has been made since probably the investigator has thrown further light on the constitution of those complex bodies, the proteids.

There has been a remarkable revival of the old theory of "vitalism" during the year and a very instructive discussion took place in the Chemical Section of the British Association for the Advancement of Science, the subject having been opened by Professor F. R. JAPP in a very scholarly address. It is well known that the majority of chemists hold that the synthesis and separation of optically active compounds have been effected without the intervention of life either directly or indirectly. Professor JAPP holds the contrary opinion and it would appear that another well-known chemist, Professor CRUM BROWN, partly shares in this belief, which amounts to the theory that a living organism exerts an action in separating, for instance, two kinds of crystals as in the classic and well-known experiments of PASTEUR on tartaric acid and racemic acid. It is curious that as the study of stereo-chemistry or structural chemistry has advanced it should induce chemists to revert to the old theory of "vitalism" which everybody had accepted as overthrown when WOHLER announced the synthesis of urea—a body which had been known formerly as exclusively the product of the living organism. The pursuit after new elements has proceeded apace, and investigators appear to hold the conviction that we have not exhausted the atmosphere of its list of elements. Professor RAMSAY now speaks of others in addition to argon, which he calls its companions—namely, krypton, neon, and xenon, all of which are spectroscopically distinct. That the spectroscope, however, may

lead into some curious errors of observation would seem to be the case according to an example which we recorded in THE LANCET a few weeks ago. It was announced from America that a new gas—etherion—had been discovered in the atmosphere which possessed physical properties, placing it more nearly than ever to the *materia prima* the protyle of CROOKES. Sir WILLIAM CROOKES, however, suggested that it was nothing more than very highly attenuated water vapour, and he quoted evidence which is certainly in favour of this view. Subsequent observations leave little room for doubt that aqueous vapour under a high degree of exhaustion was the "new gas." In our *résumé* last year of the chemical progress of 1897 we mentioned how an American investigator had convinced himself that he had found out a means of converting silver into gold. He claimed to have discovered how to utilise that force by which the transmutation of metals could be brought about. Sir WILLIAM CROOKES, we believe, has failed to accept this as an accomplished fact after careful inquiry, having had the opportunity of examining the details of the process and the materials employed.

The discovery of rare elements in the atmosphere may possess little significance in the ordinary affairs of life, but the importance of this line of research has become exceedingly great owing to the enormous advances which these discoveries have made in our knowledge of the composition and character of stars. Sir J. NORMAN LOCKYER finds that in the very hottest stars we deal almost exclusively with the gases hydrogen, helion, and doubtless others still unknown. At the next lowest temperatures these gases are replaced by metals in the state in which they are observed in our laboratories when the most powerful jar spark is employed. At a lower temperature still the gases almost disappear entirely and the metals exist in the state produced by the electric arc. Thus it is possible to classify the stars into those which are getting hotter and those which are cooling. In this classification the spectroscope is the greatest help and the discovery of elements on this earth which were formerly known to exist only in the stars has materially aided in the work. The chemistry of the stars has thus become a new and possible source of fruitful study.

The year has been marked by the output of a smaller number of synthetic products although the investigating chemist has been very busily engaged in attacking the problem of the *constitution* and *structure* of compounds. We believe that this is a direction of research which, if pursued diligently, will add more materially than by paying attention merely to *composition* to our knowledge of the therapeutics of remedies and of the processes concerned in that mysterious chemical laboratory the human body.

Vaccination.

The year has been a most momentous one with regard to vaccination and its administration. The various points of interest may be most conveniently considered here in the order in which they present themselves in the Vaccination Act of 1898. As a result of the final report of the Royal Commission which had sat for seven years and had considered the subject from every possible aspect the Government concluded that fresh legislation was necessary. They accordingly introduced last session into the House of Commons a Bill which was the subject of lengthened discussion both in Parliament and in the country and which ultimately resolved itself into an Act differing in various important respects from the Bill as originally introduced.

The primary vaccination age limit.—The Bill proposed that the age limit for primary vaccination as required by the law should be extended from three months to twelve months. In the course of discussion, however, it was pointed out that owing to change of residence many children would be difficult to trace at the end of twelve months, especially in large towns, and the age of six months as in the Scottish Act was finally adopted. The change from three months to six months is advantageous in so far as it may diminish the sentimental objection which some parents have to submit their offspring to vaccination at a very early age and in so far also as it will render vaccination free from suspicion of being the cause of those infantile deaths which under the old age limit would have followed vaccination but which under the new age limit will precede vaccination. Section 1 (5) enacts that no regulation of any lying-in hospital or infirmary or other such institution shall interfere with the extension of the age limit for primary vaccination.

Domiciliary vaccination.—An important feature of the new measure is its introduction of domiciliary vaccination by public vaccinators in substitution for vaccination at public stations which has been the system in force under the Vaccination Acts up to the present time. Several advantages are claimed for the new procedure. Children will not be exposed to any risks from bad weather incident to their being carried to and from a public station for purposes both of vaccination and of subsequent inspection. Nor will they be exposed to any risk of infection from mingling with a gathering of many children at a public station. It is possible also that some parents who might refuse or neglect to bring their children to a public station may be willing to have them vaccinated at their own homes. The Act requires that when the child has reached the age of four months the public vaccinator of the district shall give to the parent or guardian at least twenty-four hours' notice of his domiciliary visit. By an Order made by the Local Government Board under the Act the vaccination officer must provide the public vaccinator periodically with lists of children aged four months at whose homes it will be his duty to call, and his visits must be made within a fortnight of his receiving each list. He is required to make one other visit during the second week and to make any additional visits which he may find necessary in any case.

Glycerinated calf-lymph.—Following the sections of the Act the next point to be noted is that the material to be used by the public vaccinator in his domiciliary vaccinations shall be "glycerinated calf-lymph or such other lymph as may be issued by the Local Government Board." This mention of glycerinated calf-lymph is of much importance. In the first place, it involves the discontinuance of humanised lymph. While the risks of humanised lymph were very trifling—were, indeed, so trifling that medical men have habitually used it in their own families—there is no doubt that, mainly as a result of elaborate exaggeration on the part of opponents of vaccination, these risks have bulked very considerably in the public mind. The substitution of calf-lymph should do much to allay these ill-founded fears

though it is a matter of course that strenuous efforts are being made by anti-vaccinationists to inflame and prejudice the public mind against the new system. Incidentally the use of calf-lymph means the discontinuance of the habit of opening the vesicles on a child's arm on the eighth day, and in so far as any risk, say, of the subsequent introduction of erysipelas has attached to this procedure such risk will disappear. It is not meant here that erysipelas will never again follow a vaccination, for under no system can parental carelessness be always and entirely freed from its own punishment. But the lymph to be used is not merely to be calf-lymph, it is to be glycerinated calf-lymph. To mix calf-lymph with glycerine is not a new thing and that fact has of late been largely advertised by opponents of vaccination. The essence of the new system consists in so conducting the treatment of the lymph with glycerine as to cause the destruction of extraneous organisms. Briefly stated this is accomplished by not merely mixing the lymph with glycerine, but by storing it in glycerine. The details of the process have been most carefully wrought out by Dr. MONCKTON COPEMAN. The additional words of the section of the new Act—namely, "or such other lymph as may be issued by the Local Government Board"—are evidently intended to cover the possibility of other means being introduced for bringing about the required result. It is most important that public and private vaccinators and makers of glycerinated lymph should recollect the fact just mentioned—namely, that the mere mixing of glycerine with lymph does not necessarily attain the desired end. Just as carbolic acid may be used without resulting in surgical antisepsis, so glycerine may be used without destroying all the organisms which ought to be destroyed.

Postponement of vaccination.—The Act adds to the conditions previously recognised by law as justifying the granting of a certificate for the postponement of vaccination. Section 1 (4) is partly as follows: "The public vaccinator shall not vaccinate a child if in his opinion the condition of the house in which it resides is such, or there is or has been such recent prevalence of infectious disease in the district, that it cannot be safely vaccinated ..... ." Under these circumstances not only is a certificate of postponement to be granted but the public vaccinator is to give notice to the medical officer of health for the district. This section is open to some difference of interpretation. It may be assumed that every public vaccinator would consider the existence of erysipelas in the dwelling a reason for postponement, but the question whether the prevalence, say, of whooping-cough in a neighbourhood would render the child's vaccination unsafe would have to be answered according to circumstances.

The "conscience clause."—Section 2 of the Act is popularly known as the "conscience clause" and has been a cause of more discussion than all its other provisions. The Bill originally proposed that not more than one or at the most two penalties should be inflicted with regard to any child. This provision was keenly debated in the Grand Committee but was retained by a narrow majority as against a proposal for a conscience clause. In the House of Commons on the report stage the Government yielded to what it was probably mistaken in believing to be the opinion of the House in favour of further relaxation to the extent of providing for the acceptance of the plea of conscientious objection as a means of relief from the infliction of even a single penalty. The House of Lords threw out this proposal and sent the Bill back to the Commons altered accordingly. In the Lower House the Government re-affirmed its new determination in favour of a conscience clause, and when the Bill again came before the Lords much public and professional interest was felt in the result. It was thought very likely that the clause would once more be rejected and this would have meant the withdrawal of the Bill, at least for the session. Lord LISTER, however, was in a position to make a most important announcement which was immediately afterwards officially confirmed on behalf of the Government and which had the effect of inducing the Lords to accept the conscience clause, though not even then by a very large majority. The announcement was that the Government would during the recess set itself to consider the preparation and introduction in the next session of Parliament of a Revaccination Bill. The conscience clause as it now stands in the Act is as follows:—

"Section 2—(1). No parent or other person shall be liable to any penalty under Section 29 or Section 31 of the Vaccination Act of 1867 if within four months from the birth of the child he satisfies two justices or a stipendiary or metropolitan police magistrate in petty sessions that he conscientiously believes that vaccination would be prejudicial to the health of the child and within seven days thereafter delivers to the vaccination officer for the district a certificate by such justices or magistrate of such conscientious objection.

(2) This section shall come into operation on the passing of this Act, but in its application to a child born before the passing of this Act there shall be substituted for the period of four months from the birth of the child the period of four months from the passing of this Act.

The rest of the Act will come into operation on Jan. 1st, 1899, but it will be observed that the conscience clause came into operation from the date of the passing of the Act, so that already some experience has been gained regarding it. This experience has shown that, leaving aside the question of the desirability of having such a clause, the section is very vague and doubtful in meaning. Some justices of the peace have held that even if they are in a minority on the Bench any two of them can grant a certificate of exemption. The word "satisfies" in the section has evoked much diversity of opinion among magistrates. In some places all applicants have been put on oath; in others sworn testimony has been considered unnecessary. In some places applicants have been questioned with more or less detail as to the nature of their objection to vaccination; in others a mere statement of objection or the presentation of a printed declaration with the signature attached has been looked upon as sufficient. In some places the father of the child has been required to appear; in others the attendance of the mother has been accepted. In some places a birth certificate has been demanded in order to satisfy the Bench as to the age of the child; in others it has been held that no birth certificate is needed. In some places applicants have paid the fees for certificates exigible under the regulations of the court; in others applicants have refused to pay these fees and have in consequence gone away without certificates. Had the section been more

carefully considered no such crop of difficulties would have arisen regarding it. By sub-section (2), as above quoted, it will be observed that all children whose vaccination has been omitted in recent years come under the operation of the new Act and that where no certificate has been lodged by December 12th ("four months from the passing of this Act") the parent becomes liable to a penalty under the Act of 1867. The early months of 1899 should therefore witness some interesting proceedings, as it cannot be doubted that there has been failure to apply for certificates in the case of many children in various parts of the country. In THE LANCET we have held all through the course of the discussions which have taken place on this subject that it is not right to assume that everyone who is in favour of a conscience clause is opposed to vaccination or even that some who favour such a clause are anything less than hearty supporters of vaccination. The Royal Commission, which contained medical members such as Sir JAMES PAGET, Professor MICHAEL FOSTER, Mr. HUTCHINSON, and Sir W. GUYER HUNTER, and lay members like Lord HERSCHELL, the late Mr. MEADOWS WHITE, Q.C., Sir EDWIN GALSWORTHY, and others, reported strongly and unequivocally their belief in the value and essential importance of vaccination. At the same time they reported in favour of a conscience clause, and they did so believing that relaxation of the law might tend rather to the increase than to the diminution of vaccination. Looking to the fact that about a fourth of the boards of guardians in England had ceased to administer the law and that about a third of the children born last year remained unvaccinated, it is a mere misuse of language to speak of England as having been under a system of compulsory vaccination in recent years. It is true that there was on the statute book a penal law, but in many parts of the country it was not administered and in some places where it was administered the imposition of penalties did not procure vaccination. What exactly will be the effect of the new Act on the prevalence of vaccination it is not yet possible to say, but it must be recollected that the law is altered not merely with regard to its so-called compulsory provisions, and that some of the alterations, such as the adoption of a system of domiciliary vaccination and the use of glycerinated calf-lymph, may, taken together with the conscience clause, have the result of making vaccination more acceptable than before and of rendering organised opposition less effective and successful than it has been in the last few years. The new Act, however, remains in force for only five years and at the end of that period the whole subject must again come up for consideration by Parliament.

A Revaccination Bill.—It is of the utmost importance that the Government should now proceed to fulfil those promises regarding a Revaccination Bill by means of which they succeeded in passing the conscience clause through the House of Lords. If there should in this matter be any evidence or likelihood of delay it would be the duty of the medical profession to call immediate and emphatic attention to the subject and we have no doubt whatever that Lord LISTER, to whom the Government owes so much, would here lend his powerful aid.

Penalties.—In the discussion on the Bill previously to the adoption of the conscience clause considerable importance attached to the question of repeated penalties, and though it is now of much less moment the effect of Sections 3 and 4 may be noted. Where a parent has not taken advantage of the relief provided by Section 2 he may be prosecuted under Section 29 of the Vaccination Act of 1867. If a conviction is obtained under this section the new Act provides that an order under Section 31 of the Act of 1867 directing that a child be vaccinated shall not be made until the child has reached the age of four years, and that a single conviction under Section 31 will prevent any repetition of proceedings under that section. The effect will be that anti-vaccinationists who are obstinate enough to refuse the means of relief provided by Section 2 will be liable to one penalty when the unvaccinated child reaches the age of six months and to another penalty when it reaches the age of four years, after which there will be permanent release from the operation of the Acts. If owing to refusal to pay fines or costs imprisonment becomes necessary the prisoner will in future be treated as a first-class misdemeanant.

Public vaccinatorships.—The purpose of Section 6 of the new Act is to enable the Local Government Board to regulate the duties and remuneration of public vaccinators, whether appointed before or after the passing of the Act. It is under this section that the Board recently fixed the minimum scale of fees which has been the subject of so much discussion by boards of guardians and public vaccinators. It is only necessary to mention here that the minimum scale consists of a fee of 1*s.* in respect of the name of every child contained in lists to be periodically submitted by the vaccination officer to the public vaccinator for the purpose of being visited, and a fee of 5*s.* for every successful infantile vaccination, excepting in workhouses, where the minimum fee is 2*s.* 6*d.*, and for vaccination or revaccination of persons over fourteen years of age at the public vaccinator's consulting-rooms or elsewhere, for which also the minimum fee is 2*s.* 6*d.* In many places scales of payment considerably in excess of these minima have already been agreed upon by guardians and their public vaccinators.

Vaccination stations.—The Act further provides (in Section 7) that in exceptional circumstances, as where prevalence of small-pox is threatened, the Local Government Board may modify the requirements regarding domiciliary vaccination and may order the guardians to establish temporarily public vaccination stations which are otherwise to be abolished.

Hospital records.—In view of the wild allegations which have sometimes been made as to manipulation of the records of small-pox hospitals, the Act lays on all sanitary authorities the duty of keeping lists of small-pox cases treated in their hospitals, including a statement of their vaccinal condition on admission, and public access to these lists is to be allowed at all reasonable times.

The Act does not extend to Scotland or to Ireland.

As we have already indicated it is at present impossible to make a profit-and-loss estimate of the results of the new Vaccination Law. Excepting as regards the conscience clause the Act comes into operation only on Jan. 1st, 1899, and domiciliary vaccination in England is therefore as yet an untried experiment. Already the conscience clause has been construed so differently in different districts as to

show the need for its immediate amendment by Parliament, so that magistrates and the public generally may know what is really meant to be enacted. Where a father has had to leave his work in order to attend court and has there had to produce a child's birth certificate and to state on oath his conscientious objection to the vaccination of such child the test has had in it something of reality. Where no oath has been administered, where no birth certificate has been required, where the attendance of the father has been unnecessary, where the objector has been put to no trouble or inconvenience of any sort the clause in its operation has provided no test whatever between conscientious objection and mere indifference or laziness. For the working of the remainder of the Act it will be necessary to wait to see.

Public Health.

So far as can be judged from the vital statistics as yet available the year 1898 bids fair to turn out in the main a healthy one. Not only was the general rate of mortality below the average for the first two quarters of the year, but the same would have applied to the third quarter also had it not been for excess in death from one single disease affecting one age-period only. Subject to the same exception the death-rate from the zymotic group of diseases during the three quarters in question was also below the average for the past ten years. The exception has to do with diarrhœa which was essentially infantile in its incidence and which caused a considerable increase in death during the third quarter of the year. The rate of mortality under one year of age during that quarter showed an excess of 55 on every 1000 births beyond the average; the zymotic rate also exceeded the average, and the diarrhœa rate reached 2·85 per 1000 living, or 1·21 above the average for the preceding ten years. As is usually the case this excess coincided with a high temperature and a diminished rainfall. Thus during August the temperature on certain occasions reached 12° F. and in September 17·7° above the average, and the rainfall for the third quarter was nearly 5 in. below the average. The towns always suffer most under these circumtances, and amongst those which had the highest diarrhœa death-rates were Hull, Sunderland, Sheffield, Wolverhampton, Preston, and Salford. Notwithstanding the failure of a constant service of water in an important portion of the metropolis London as a whole finds no position of unenviable prominence in the Registrar-General's returns for the third quarter of the year as regards either diarrhœa or fever. The subject of a deficient water service was, however, one to which great prominence was given during the year and it was associated with an effort on the part of the Government to obtain both for water consumers and in some respects also for water companies more control than they now possess in the matter of protecting from pollution the sources of water which companies and sanitary authorities deliver to the consumers and which the public are compelled to take and to pay for. But the attempt was frustrated on the plea that any restrictions in this respect beyond those now existing ought to be embodied in a general Act and not in special Acts even though new powers were being asked for from Parliament. It remains to be seen whether the Government will bring in any such general Bill next session and what will be the attitude of those representing water companies to it if their own suggestion is thus complied with.

But little has as yet been achieved to diminish the prevalence and fatality of diphtheria, especially in large towns and cities, including the metropolis. Few who are conversant with the etiology of this disease now entertain any doubt that with the largely increased facilities for personal communication which are afforded to children at the age when they are most liable to be attacked by diphtheria which are the outcome of attendance in elementary schools there has been a marked increase in the amount of death from this disease. The majority of observers also feel confident that by reason of the aggregation of young children in schools diphtheria amongst them is apt at times to assume a character of special potency for spread. Some time since it was announced that the Education Department of the Privy Council intended to make inquiry into the subject, but no indication of any such investigation has as yet been apparent. It is therefore opportune that the London County Council should at the present moment be pressing the need for an exhaustive inquiry into the matter both upon the Local Government Board and upon the Education Department. Whatever can be done reasonably by school restrictions in this matter ought to be carried out without further delay.

The country has happily been free from any widespread epidemics whether it be considered as a whole or in regard of special communities and similarly we have not suffered from the importation of any foreign epidemics. Our relations with Bombay where plague has now so long prevailed have been fully maintained but only on three occasions have vessels that could be regarded as infected with that disease reached our ports. On each occasion the measures of precaution which have been adopted have sufficed to prevent any extension of the disease after the vessel had once come within the control of an English port authority. The last occurrence of this sort took place during the week ending Dec. 10th.

The most important event in relation to public health in this country which has taken place during the past year has been the passing of the Vaccination Act, 1898. This subject is treated at length on page 1790. No other legislation bearing upon public health calls for notice. Indeed, apart from the limited number of subjects to which we have adverted the year 1898 has been a somewhat uneventful one in so far as the public health is concerned.

The University of London.

After many years of waiting—and not of patient waiting—we have at last in our annual summary of events something definite and promising to chronicle concerning reform in the University of London. The Bill for appointing a Statutory Commission to deal with the questions arising out of the reconstitution of the University passed through the Committee stage of the House of Commons on July 26th of this year, was allowed a third reading on that date, and received the QUEEN'S assent on August 12th. The Commission immediately got to work, Mr. T. BAILEY SAUNDERS being appointed secretary. We tender our hearty congratulations to Sir JOHN GORST for the manner in which he piloted the Bill through

the Lower House, while we consider that the solution of the important problems in education which have been thus boldly tackled will redound greatly to the credit of the Government. That teaching functions should be added to the University of London is clearly for the benefit of the London medical student and this has been the main reason for giving prominence in our columns to all the schemes which have had this object in view. A *résumé* of these schemes, forming a history of the movement for reform in the University from its inception in 1864 down to its present interesting position, was published in our Students' Number of this year[1] and to this we refer our readers. A proposal to locate the University in the buildings of the Imperial Institute, in view of its insecure tenure of its present home, has received serious discussion and will necessarily call for criticism from some of those interested in University College, Gower-street.

The General Medical Council.

The General Medical Council has held three meetings in the past year. In addition to the ordinary meetings in May and November respectively a special meeting was held on April 5th and the succeeding day for the consideration of the Midwives Bill, then before Parliament, at the request of the Government. At that time the Council was without a President, in consequence of the lamented death of Sir RICHARD QUAIN. The meeting was summoned at the instance of the senior treasurer, Sir DYCE DUCKWORTH, who was voted into the chair. Thereafter Sir WILLIAM TURNER was duly elected President. His connexion with the Council on and off for twenty-five years, his active share in its work and knowledge of its procedure, together with his sound judgment and capacity for the transaction of business, account for the unanimity of his election. The first act of Sir WILLIAM TURNER after returning thanks for his election was to propose a resolution expressing sympathy with the family of the late President, which he did with much feeling. As the result of the two days' meeting the Council, basing itself mainly on the report of its Midwives Committee, came to a unanimous declaration, on the motion of Dr. DONALD MACALISTER, that the Bill submitted to the Council did not solve the question under consideration and it proceeded to lay down certain principles as being essential in any such measure. In one point the Council departed from the report of its committee on the suggestion of Sir WM. GAIRDNER. It reported in favour of licensing midwives annually instead of registering them, the licence to be granted by the local sanitary authority. A chief feature of the report of the Council was the emphasis with which it urged that any unlicensed woman, whether calling herself a midwife or not, who not being registered under the Medical Acts practised as a midwife for gain should be made liable to a substantial penalty. In the course of the Parliamentary session a deputation in favour of the Midwives Bill waited on the Lord President to urge the passage of the measure but he gave them no encouragement and advised them to seek an understanding with the General Medical Council. Accordingly they sought a conference with the Council, which was arranged. Sir RICHARD THORNE, Dr. GLOVER, Dr. MACALISTER, and Sir CHRISTOPHER NIXON were appointed a committee for this purpose. The conference was duly held. The deputation representing the Midwives Bill stated their objections to the system of licence and to the prohibition of practice as well as of titles by unregistered persons, but the committee representing the Council remained firm on these and other points. At the recent meeting of the Council the same committee, with the addition of Mr. HORSLEY, was appointed to watch any attempt at legislation on the subject in the coming session.

The second meeting of the Council extended from May 24th to the 31st. A novel subject for discussion arose early at this meeting on Mr. HORSLEY getting permission to call the attention of the Council to an alleged infringement of the rights and privileges of the members by the President in directing the Registrar to refuse a member the exercise of his right of inspection of documents, the property of the Council. The President explained to the complete satisfaction of the Council that in the course he took he acted entirely on the advice of the Council's counsel. The necessity of safeguarding these documents was universally admitted. A committee of inquiry into the conduct of legal business and the cost incurred was moved by Mr. HORSLEY and seconded by Dr. GLOVER, but the motion was lost. In the end a resolution was passed requiring members desiring access to the documents which are the property of the Council to obtain leave either from the Council, or the Executive Committee, or the President of the Council. In penal cases the leave of the Council itself must be given. It will be remembered that at the recent meeting the rule passed in May was found to be inconvenient and was referred to the Executive Committee for consideration and report at its next meeting.

At the May meeting an extraordinary case came under the judicial notice of the Council—that of a practitioner named JOSHUA HAMILTON HART—charged with associating himself with "Munyon's Homœopathic Home Remedies." Mr. HART stated that he had nothing to do with the medicines prescribed but only to say what the complaint of the patient was. The appropriate remedy followed of necessity on the complaint being labelled, being already fixed by the genius of MUNYON. The Council, of course, had no hesitation in removing the name from the Register. A very important improvement in penal procedure was made on the motion of Sir BATTY TUKE that no case of complaint should be considered by the Penal Cases Committee until a statutory declaration as to the facts of the case had been supplied by the complainant. In the educational part of the work of the Council in May one of the principal subjects dealt with was the consideration of a communication from the Secretary of State for the Colonies on Instruction in Tropical Medicine, Hygiene and Climatology. The Council did not see its way to lay any heavier burdens on the ordinary medical student, but strongly recommended that arrangements should be made by Government for special instruction of the sort for duly qualified practitioners selected for colonial medical service or intending to practise in the colonies. Another feature of the May meeting was the discussion of

[1] THE LANCET, Sept. 3rd, 1898, p. 591.

a series of recommendations, in the form of propositions, as to the course of study and examinations to be required of candidates for diplomas in dental surgery. There was great rejoicing over the completion of the new Pharmacopœia which was handed over to the Executive Committee for publication by the late President, Sir RICHARD QUAIN, on Feb. 19th—his last official act.

At both the May meeting and the November meeting communications on the subject of unqualified assistants occupied the time of a special committee presided over by Mr. TEALE without any change in the letter of the resolution adopted by the Council on Nov. 24th, 1897. At both meetings, too, reports were received from the Examination Committee on the reports of the inspector of the examinations of the Apothecaries' Hall of Ireland.

The lengthy proceedings of the November meeting are so recent and have been so fully commented upon in our columns that they need not detain us at the present time. The most important part of the work of the Council was its discussion of the report of the Education Committee on the list of preliminary examinations recognised by the Council and its deletion of the second-class certificate (first and second division) of the College of Preceptors. But clear warning has been given that further deletions will be made and that the notice of them will not be very prolonged. We must not forget to record the efficient action of the President in his communication with the Privy Council with regard to such an amendment of the Medical Act of 1858 as shall deprive any graduate or diplomate whose name has been erased under Section 29 of the right to use the title attaching to his degree or diploma so long as the erasure continues.

The British Medical Association.

The sixty-sixth annual meeting of the British Medical Association was opened at Edinburgh on Tuesday, July 26th, under the presidency of Sir THOMAS GRAINGER STEWART, M.D., LL.D., F.R.S. Edin., Professor of Medicine in the University of Edinburgh and Physician-in-Ordinary to Her Majesty the QUEEN in Scotland. That it was a success we need hardly venture to remind our readers, for not only is the capital of North Britain so associated with culture as to have earned for itself the *sobriquet* of Modern Athens but its architecture and surroundings possess all the attractiveness that visitors could desire. Added to this was the fact that everything that could be done was done for the convenience and comfort of members and their friends.

The Presidential Address dealt with a large number of questions affecting the relations and efficiency of the medical profession and may be described as a masterly performance. The Address in Medicine delivered by Professor T. R. FRASER was mainly occupied with a remarkably lucid and exhaustive account of the present position of science in regard to the share taken by toxins in the production of disease and the new aspect which has been given to the interpretation of the facts of infective disease and the prospects which are offered for their mitigation and abolition. The Address in Surgery was delivered by Mr. ANNANDALE who dealt with the present position of that branch of the healing art. In Psychological Medicine the name of Sir JOHN BATTY TUKE is an ample guarantee that the address was an able one. At the general meeting it was decided that medical defence should not be undertaken by the Association.

As a *rapprochement* between this country and the United States is so much in evidence just now it is noteworthy that among the social features of the Edinburgh meeting was a luncheon given by the Anglo-American Continental Medical Society whose object it is to serve as a bond of union between the British and American practitioners established on the continent of Europe and Northern America. At the annual dinner the toast of the evening was given by Professor BOWDITCH of Harvard College, Boston, U.S.A., who took occasion to remark on the essential unity of the two nations.

At the summer graduation ceremonial of the University of Edinburgh the honorary degree of LL.D. was conferred upon the following gentlemen among others: Dr. H. PICKERING BOWDITCH, Professor of Physiology in Harvard University; Sir WILLIAM BROADBENT, M.D., F.R.S; Dr. LAUDER BRUNTON, F.R.S.; Dr. EUGENE DOYEN of Paris; Dr. DAVID FERRIER, F.R.S.; Dr. JOSEPH FORSTER, Professor of Hygiene and Bacteriology in the University of Strassburg; Dr. CARL GERHARDT, Professor of Medicine in the University of Berlin; Mr. HUTCHINSON, F.R.S.; Dr. THEODOR KOCHER, Professor of Surgery in the University of Berne; Dr. AUGUST MARTIN, Professor of Gynæcology in the University of Berlin; Dr. JOHANN MICULICZ, Professor of Surgery in the University of Breslau; Dr. MORISANI, Professor of Midwifery in the University of Naples; Dr. William OSLER, F.R.S., Professor of Medicine in the Johns Hopkins University, Baltimore; Dr. WILLIAM S. PLAYFAIR; Dr. THOMAS RODDICK, Professor of Surgery in the M'Gill University of Montreal, ex-President of the British Medical Association; Dr. SIEGMUND ROSENSTEIN, Professor of Clinical Medicine in the University of Leyden; Dr. HERMAN SNELLEN, Professor of Ophthalmology in the University of Utrecht; and Sir RICHARD THORNE, F.R.S.

It was decided to hold the next meeting of the Association at Portsmouth.

The Metropolitan Hospital Sunday Fund and the Prince of Wales's Hospital Fund.

Under the Presidency of the Right Honourable Sir HORATIO D. DAVIES, K.C.M.G., M.P., Lord Mayor, the twenty-sixth year's collection of this Fund resulted in a total of £40,397 2*s*. 10*d*. The Rev. C. J. RIDGEWAY, M.A., of Christ Church, Lancaster-gate, headed the list of contributions with £1367; the Rev. Canon FLEMING, B.D., of St. Michael's, Chester-square, collected £1268; the Rev. J. STORRS, M.A., of St. Peter's, Eaton-square, £681; the Rev. Prebendary EARDLEY-WILMOT, M.A., of St. Jude's, South Kensington, £623; and the Rev. F. E. RIDGEWAY, D.D., of St. Peter's, Cranley-gardens, £501. Sir SAVILE CROSSLEY, Bart., again contributed £500, and a sum of £500 was also sent by him to "The Prince of Wales's Hospital Fund"; £300 were received from A. G. P.; "Delta" sent his twentieth donation of £200; and Mr. GEORGE HERRING gave £200. The sum collected this year may on the whole be considered satisfactory for it must be remembered that the exceptional influence of the special claims of the year of HER MAJESTY'S Diamond Jubilee has, probably, not yet ceased to be felt.

A recent report of the Prince of Wales's Hospital Fund

states that a sum of £30,000 is still required to meet the minimum necessities of the hospitals for the present year. Last year the Prince of Wales's Fund was the means of opening 180 beds which previously had remained closed for want of money. The amount in hand at the close of the financial year was £203,490, of which £32,500 were available for distribution.

Sanitation: Special Articles and Investigations.

The sanitary state of Belfast.—The articles published in the month of December, 1897, on the typhoid fever epidemic at Belfast were followed in February this year by a series (illustrated by some photographs) on jerry-building in that town. These showed the privy middens exposed to the public view from a frequented thoroughfare or, when situated in the privacy of a small backyard, placed so close to bedroom windows that there was no escape possible from the effluvia of the uncovered offensive matter. The household refuse and nightsoil which these open privies contained escaped into the yards or percolated through the walls into the dwelling-houses. In some cases the situation was aggravated by the presence of ponies, donkeys, pigs, or poultry in the small backyards. Here and there the cottages were of such a wretched description that the floor was not boarded. The inhabitants were so poor that they had no bedsteads but slept on a mattress placed on the bare, damp earth. Though quite exceptional still there were a few floorless houses in the very midst of the wealthy town of Belfast. The speculations in land and in jerry-building were explained and denounced, as was also the lack of energy on the part of the authorities in dealing with these matters. In contrast with the inefficient and antiquated methods of draining employed in Belfast we published some account of the new system of drainage now being installed at Bombay. Here the difficulty of low-lying levels is met by the employment of compressed air to raise the sewage at frequent intervals. Thus the sewers, even in the lowest districts, will have sufficient gradients to be self-cleansing.

The Ninth International Congress of Hygiene.—The fullest account of this important Congress, published at the time when it was held, appeared in our columns. From the general secretary, writing in the name of the Spanish authorities and organisers of the Congress, we have received courteous letters of acknowledgment for the large share of publicity which we gave to the efforts of the sanitary reformers of Spain. Though the Congress was held a few days before the outbreak of the war—i.e., from April 10th to the 17th—it was a great success. The hospitality and the courtesy of the Spanish people were displayed to the best advantage under the most trying circumstances. Even the American delegates to the Congress were treated with the greatest consideration and politeness. The debates, attended by some 2000 members and delegates, naturally embraced a great variety of subjects and several new and important questions were brought forward—such as, for instance, the treatment of infected walls in buildings or hospitals by inoculation in the same manner as living beings are rendered immune by antitoxins; the yearly school feasts when every child plants a tree so as to improve the climate; the cure of the bites of venomous snakes by inoculation of serum, &c. It is much to be regretted that the British delegation to this Congress was, comparatively speaking, small. The next Congress will be held at Paris in 1900, and it is to be hoped that on that occasion British sanitary reformers will be present in larger numbers and that British sanitation will figure to greater advantage.

Sanitation in Spain.—After the Congress our Special Commissioner was able to visit the military hospital at Cadiz and to depict its deplorable condition. On the other hand, he at great length described the new military hospital at Madrid which is a model for all nations. Then our Commissioner showed what great economies had been effected in the military medical services by the State. From the Central Laboratory at Madrid medical stores which had cost the Government 3,059,526 pesetas to produce had been sent out to Cuba since 1894. If these same articles had been bought on the spot they would have cost 8,826,248 pesetas and thus an economy of 5,766,722 pesetas was realised. (If there were no premium on gold the peseta would be equal to the franc or to 10*d.*) The various medical and hygienic educational institutions of Spain were likewise described as also were the medical services organised by the Spaniards in Cuba.

Morocco.—From Spain our Special Commissioner was able to pay a flying visit to Tangier, which by reason of its climate is so well suited for a health and winter resort. Since the last account which we published of Tangier in 1887 many improvements have been effected and a sort of European municipality has been brought into existence. These alterations, however, have the disadvantages of somewhat spoiling the appearance of the place which owes its charm to its purely Oriental character and to the great relief which it affords to the mind of the European traveller who on reaching Tangier experiences a complete change in all his usual surroundings.

Gibraltar and social purity.—From Tangier it is but a short sea passage to Gibraltar and we published an account of the sanitary progress recently accomplished in that important fortress. From 1851 to 1866 the average death-rate was 29·25 per 1000; from 1891 to 1895 it was 19·97; but last year it rose again to 23·56 per 1000, the zymotic death-rate being equal in that year to 3·77 per 1000. The chief sanitary defect is overcrowding, resulting to a great extent from the military exigencies of the situation. Gibraltar being also a very important commercial centre there is much to attract business men and workmen. Great efforts are being made to increase and improve the water-supply. The house drainage is good, the public sewers have been somewhat improved, but the method of ventilating the sewers is still very defective. At the military hospital there were evidences of unwise and exaggerated economy which would prove very costly if an emergency were to arise. The most startling fact published related, however, to the disastrous effect produced by the social purity campaign organised at Gibraltar. As nearly all the public women were foreigners it was the custom not to give them permission to reside in the colony unless they consented to be medically examined every week. As this examination did not differ from that to which they were accustomed before leaving their own country they readily assented and thus venereal

disease was kept somewhat in abeyance. But this did not suit the social purity agitators and some six or seven years ago this practice was abolished. The only measure which can now be taken is to send such women away altogether. To avoid this contingency several of them have preferred paying British subjects to marry them and then they cannot be sent away. The direct effect of the social purity agitation is that there is now a class of men in Gibraltar who are living on the prostitution of their wives. These women having by marriage become British subjects cannot, as was the case formerly, be compelled to reside in one particular and distant part of the town, but may frequent and corrupt any quarter of Gibraltar. All control having been abolished venereal disease is so prevalent that the inhabitants of Gibraltar lose no opportunity of going over to Spain where the women are safer. The consequence is that Gibraltar is looked upon as a sort of plague spot by the Spanish authorities. At Algeciras notably, where a great many English families from Gibraltar spend the hottest months of the summer, far more disease is prevalent among the Spanish women at that season, and as soon as the English begin to arrive the Spanish public women have to be examined with exceptional care to protect the population generally from British contamination. Finally, the women at Gibraltar are not at all satisfied with the abolition of control and do not thank the social purity party for what they have done. Far from considering a medical examination as a degradation they are voluntarily seeking to re-establish the control which the law used to enforce. They now pay medical men to examine them and are proud of the certificates which they thus obtain. It is becoming more and more the custom at Gibraltar to ask a woman for her medical certificate, and thus the very system which the social purity party have so strenuously denounced is being re-established by voluntary effort and by the women themselves.

Bordeaux.—Returning homewards from Spain our Special Commissioner examined closely the new sanitary service established at Bordeaux where a very ingenious system has been organised for compiling a complete sanitary record of all the dwellings of the town. Here also the practice of disinfecting by steam under pressure not only such bedding and clothing as are known to have been contaminated but also articles about which only doubts are entertained is gaining ground rapidly. The State pawn-shop causes all bedding which is pledged to be disinfected, and some of the more respectable auctioneers will not sell bedding which has not been first disinfected. The account of these new services in Bordeaux was followed by some description of the somewhat feeble and tentative attempts made in Paris to deal with the very difficult question of the spread of disease through laundries. In England the matter has been considered principally from the point of view of the danger which the public incurred of having the linen contaminated by the laundresses; in France the fear is rather that the laundresses themselves may be contaminated by the linen. But, as the French would say, *l'un n'empêche pas l'autre.*

Diphtheria at Tunbridge Wells.—We sent a Commissioner to Tunbridge Wells where diphtheria had been exceptionally prevalent and he described a condition of things which for so prosperous a town should not exist. The fact is that it is almost impossible to obtain land for the building of workmen's cottages. Consequently the few cottages that exist are let at exorbitant rents and this occasions much overcrowding which, together with sewers that do not work satisfactorily, accounts in a measure for more sickness than there need be in so prosperous and well-situated a residential and pleasure town. At the recent elections of town councillors some medical men and others pledged to sanitary reform were at the head of the poll and the infusion of this new blood may bring about a better state of affairs.

The second typhoid fever epidemic at Belfast.—The recurrence in epidemic form of typhoid fever at Belfast, coming so soon after the epidemic of last year, induced us to institute a further inquiry into the condition of that town. The old grievances though so glaring and fatal in their consequence have not yet been removed. The privy closets still abound though it has been shown that typhoid fever occurred in 5·5 per cent. of the houses with privies and in only 2·7 per cent. of houses with water-closets. Nor has any measure been taken to deal with the contaminated subsoil. Whole districts are built on the rubbish, including the contents of the privies of the town, but how to prevent the evil results is so vast a question that no one seems to have the courage to approach it. Nor is anything said about the main drainage which as a scheme was devised for a smaller population and works in a very defective manner. That Belfast is absolutely unhealthy is proved by the exceptional number and fatality of cases of typhoid fever which occur among the police and others who are not natives of the town and well inured to its unwholesome characteristics. A new town council was, however, elected a year ago which contains a stronger element of progress.

The Royal College of Physicians of London.

Several matters of importance engaged the attention of the College at the various meetings of the Comitia. Some of these were of general interest whilst others related to medical education only. Steps were taken to promote the introduction of the University of London Commission Bill and the long preliminary struggle has at last terminated, although numerous difficulties will probably present themselves after the report of the Statutory Commission has been issued. The President, in conjunction with the President of the Royal College of Surgeons, addressed a memorial to the Secretary for War in behalf of reform of the Army Medical Department. This vexed question has also now been settled.

Whilst the debate on the Vaccination Bill was in progress the College forwarded to the Government a strongly worded resolution reiterating their conviction that vaccination properly performed and duly repeated is the only known preventive of small-pox.

The most animated discussion of the year took place on the subject of the preliminary education of the medical student. A report was submitted from the Committee of Management pointing out that although students were encouraged to complete their studies in chemistry, physics, practical chemistry, and biology before entrance on the professional course proper, and although certain institutions had been recognised as suitable places of instruction in these subjects, there was little gained

by the student, who was still required by the regulations to go through a course of five years at a medical school, no matter whether he had been registered previously or not. The committee therefore suggested that the regulation should be altered so that "the first of the five years of the curriculum may be spent in obtaining instruction in chemistry, physics, practical chemistry, and biology, either at a recognised institution or at a recognised medical school and that the candidate be required to spend four winter and four summer sessions from the date of passing Parts I. and III. of the joint examination at a recognised medical school and hospital before entrance to the examinations in medicine and surgery." After a prolonged discussion occupying the greater part of the time of two meetings of the Comitia this was carried.

The report of a special committee appointed on Oct. 28th, 1897, to consider the subject of elementary biology recommended that in order that the time devoted to the study of biology should not encroach on that given to anatomy and physiology the regulation for the second examination as to twelve months dissection be modified by words indicating that the period of dissection required by the regulations should be subsequent to the instruction required for the preliminary subjects—chemistry, physics, and biology.

A Special Leprosy Committee reported: "That the communicability of leprosy by direct or indirect means from lepers to the healthy must now be accepted as an established fact"; but further recommendations were referred to the Committee for certain alterations. The Committee on Infectious Puerperal Diseases recorded their opinion that with a view to the limitation of dangerous infectious diseases the London County Council would be acting rightly in adopting the view that the expression "'puerperal fever' should be taken to include septicæmia, pyæmia, septic peritonitis, septic metritis, and other acute septic inflammations in the pelvis occurring as the direct result of childbirth." Sir SAMUEL WILKS was re-elected President by a majority which showed the high appreciation of the College of his value in such a position. The Murchison Scholarship was gained by Mr. J. BASIL PAGE of St. Mary's Hospital.

The following were the lectures delivered during the year:—The Milroy Lectures, by Dr. S. MONCKTON COPEMAN, on the Natural History of Vaccination; the Goulstonian Lectures, by Dr. J. ROSE BRADFORD, on Observations on the Pathology of the Kidneys; the Lumleian Lectures, by Sir R. DOUGLAS POWELL, on the Principles which Govern Treatment in Diseases and Disorders of the Heart; and the Croonian Lectures, by Dr. SIDNEY MARTIN, on the Chemical Products of the Pathogenic Bacteria considered with Special Reference to Enteric Fever. Dr. W. M. ORD was the Bradshaw Lecturer, whilst the Harveian Orator of the year was Sir DYCE DUCKWORTH.

The Royal College of Surgeons of England.

A very uneventful year for the Royal College of Surgeons is drawing to its close. It can hardly be said that any substantial progress has been made towards the extension to the Members of the College of the right of voting at the election of the Council, but the general tone of the November meeting of the Fellows and Members was much better than that which has prevailed on previous occasions and we look forward with hope for better things in the not far distant future. The Council has at several of its meetings considered complaints of canvassing by Members of the College and has expressed its willingness to hear any evidence put before it, yet it has not been able to make a definite pronouncement in any individual case.

A few years ago half-yearly meetings were granted to the Fellows, but the proceedings have hardly ever been of much interest or importance and in January last no quorum could be formed. As a result of this the Council decided to do away with the January meeting, but unfortunately at the July meeting also a quorum was not present, only 26 Fellows attending. We fear that these meetings may cease to be held if the Fellows do not attend more regularly. In March the Council received a petition from some Fellows and Members which claimed that the right of appointment of the representative of the College on the General Medical Council legally belonged to the whole body of the Fellows and Members. There is much to be said in favour of the petitioners' view, but the Council was unable to admit the justice of the claim.

When prohibitive restrictions were threatened as to the practice of British medical men in Italy the Council succeeded in obtaining through the Secretary of State for Foreign Affairs an assurance that no such intention existed. In the matter, too, of the formation of the Royal Army Medical Corps the action of the President of the College was of great usefulness.

Sir WILLIAM MACCORMAC, Bart., K.C.V.O., was re-elected President in July, and at the election of members of Council Mr. JOHN LANGTON and Mr. HENRY MORRIS were re-elected and Mr. RICHARDSON CROSS was elected. Only 26 Fellows voted in person, but 651 voted through the post. Mr. PICKERING PICK and Mr. HOWARD MARSH were appointed Vice-Presidents.

Mr. PICKERING PICK delivered the Bradshaw Lecture in December, the subject being the Healing of Wounds. Sir WILLIAM MACCORMAC will be Hunterian Orator in 1899. Two former members of Council have died during the year—Mr. EDWARD LUND and Mr. HENRY LEE. The Jacksonian Prize was awarded to Mr. PERCY FURNIVALL, F.R.C.S. Eng., the subject being the Pathology, Diagnosis, and Treatment of the Various Neoplasms met with in the Stomach, Small Intestine, Cæcum, and Colon. The subject for the Jacksonian Prize in 1899 is the Pathology, Diagnosis, and Treatment of the Inflammatory Affections of the Nasal Fossæ and the Associated Sinuses and Air Cells. For the College Triennial Prize the subject is the Thyroid Gland, its Structure, Comparative Anatomy, and Physiology. Mr. CHARLES SISSMORE TOMES, F.R.S., and Mr. W. DUNNETT SPANTON were elected Fellows under the twenty years' rule. An academic gown has been chosen which Fellows of the College may wear on State occasions, and a similar privilege will probably be granted shortly to the Members.

The Council have applied in vain for exemption from corporation duty, but they have decided to appeal against the adverse judgment.

The Benevolent Agencies of the Profession.

The reports of the benevolent societies of the profession show not only that medical charities do not obtain the support which they deserve but that they do not receive the help which they need. Temporary or acute distress such as is dealt with by THE LANCET Relief Fund (the report of which will be published next week) is apparently not so great as during last year, or at any rate stationary, but the more chronic form of need is probably as prevalent as in the past. The forty-fifth annual report of the Royal Medical Benevolent College stated that the year with which it dealt had been one of great anxiety in consequence of large but necessary expenses; nevertheless, it is satisfactory to know that there was a small credit balance. The amount received from annual subscriptions was under £3500, while the expenses on the benevolent side of the institution are over £6000 annually. In an appeal which was issued in October last signed by Sir JOSEPH FAYRER, K.C.S.I., Dr. CONSTANTINE HOLMAN, and the Secretary, it was said:

"If each member of the profession would give 10*s.* or even 5*s.* a year for a very few years the position of the pensioners and foundation scholars would be placed on a secure financial basis and the Council would be able to improve the school and extend its usefulness still more."

The report of the committee of the British Medical Benevolent Fund for the year 1897 shows the amount received in subscriptions and donations to have been £1367. The sum paid out in grants was £1236. It is sad to note that many of the cases requiring relief had to be put off from month to month owing to want of funds. There are 107 annuitants of the fund who collectively receive £2168. At the last quarterly court of the Society for the Relief of Widows and Orphans of Medical Men applications for relief were read from 49 widows, 11 orphans, and 6 recipients from the Copeland Fund. £1197 11*s.* were recommended for distribution amongst them.

The Analytical and other Commissions of THE LANCET.

Towards the end of the year 1897 we instituted an inquiry into the quality of the milk supplied to the metropolitan hospitals. To that end samples were obtained under what we thought to be fair and representative conditions and brought to THE LANCET Laboratory for analysis. The result of the inquiry was interesting. Of the 11 samples obtained from the leading general hospitals in London 7 proved to be of good average quality, 2 of indifferent quality, 2 decidedly poor and in all probability watered, while 3 specimens contained distinct though not excessive quantities of boric acid. In the report of this Commission which appeared in THE LANCET of Jan. 1st, 1898, we commented upon the employment of preservatives in food for general purposes, pointing out that however justified this recourse may be in such cases the practice in the case of milk which is intended for the sick should be vigorously prohibited. We suggested that the officials appointed to take samples under the Food and Drugs Act should pay special attention to the hospitals whose supply of milk in many cases must be equal to the stock of the ordinary milk-shop. We have reason for believing that our inquiry bore excellent fruit, for we have since learned that some of the hospital authorities concerned have sought the assistance of the scientific departments connected with the institutions to examine and report from time to time on the quality of the milk supplied.

In THE LANCET of March 5th, 1898, we recorded some experiments made in THE LANCET Laboratory with certain hair combs which proved to be composed of a very highly and easily inflammable substance. The danger is increased by the fact that the hair fastener with which we experimented could only with difficulty be drawn from the hair. The ornament consisted in reality of two combs fastened together at one end by means of a hinge in the same way as a pair of compasses, the hair being caught up by the combs when interlocked. We found that a hot curling iron was sufficient in contact with this comb to start the evolution of dense fumes which are easily ignited even when some distance away from a flame. We mentioned an instance which was known to us of this accident having actually occurred. We urged that the public should be fully aware of the dangerous nature of these combs and we suggested that the manufacturers should be compelled to stamp plainly on all such articles the words "Highly Inflammable."

In the following issue of THE LANCET we pointed out the very common but mistaken notion that the electric incandescent lamp is free from heating effect. On the contrary we found in laboratory experiments that the heat of the electric incandescent lamp is considerable. When buried in cotton-wool, for example, the material soon scorches and ultimately bursts into flame, the lamp generally collapsing with a loud report. The bearing of this result upon the use of incandescent electric lamps in shop windows where a profusion of highly inflammable fabrics is displayed was pointed out as a corollary.

Much of the practical work in THE LANCET Laboratory this year has been devoted to an inquiry into the production, composition, and character of sherry. Sherry is a wine of some importance in medicine since it is the only wine ordered in the preparation of certain pharmaceutical compounds. Further, there has been considerable discussion in medical circles as to the effects of a wine containing sulphate of potassium which is the product of the so-called "plastering" process. We therefore thought the subject was one well worthy of investigation. Obviously this could not be thorough without an inquiry on the spot and an inspection from beginning to end of the processes which are concerned in the production of this wine, and accordingly one of our Commissioners visited the scene of sherry production, Jerez de la Frontera in Spain. We venture to think that the information so gained was of interest to our readers. A great number of analyses were subsequently made in THE LANCET Laboratory and the results together with the conclusions to which they pointed appeared in THE LANCET of Oct. 29th, 1898. It was shown that the "plastering" process was an exceedingly old custom which even PLINY mentions as ancient and that the process probably had its origin in the fact that the vintages were more satisfactory when the grapes had an unusual amount of the vineyard soil attached to them, the soil consisting largely of lime salts. The analyses which we made confirmed in a very interesting way the experience of the grower—namely, that without the treatment with sulphate of lime the wine develops but a feeble character. On the other hand, after

treatment with a small quantity of sulphate of lime which is dusted over the grapes a remarkable development of vinous ethers takes place. Our analyses offered an explanation of this from the fact that tartaric acid is largely set free by the sulphate of lime treatment, and this acting upon the alcohols produces the corresponding ethers. It was further shown that the adulteration of Spanish wines is exceedingly unlikely since grape juice in that country is the cheapest possible material for producing spirituous liquids.

A Select Committee of the House of Commons issued a report this year upon a subject with which a Commission of THE LANCET dealt practically in our columns on Jan. 4th, 1896, and the report of the Select Committee on Petroleum to which we refer was published in the second week of August. The upshot of this report was a recommendation of the adoption of a flash-point of 100° F.—that is, of about 27° above the flash-point of the oil commonly supplied. The Committee were careful to add, however, that in their opinion statutory powers should be created to enable the Secretary of State to issue orders affecting the manufacture and sale of lamps. In the report of THE LANCET Commission referred to we ventured to suggest that legislation could effectively deal with the danger arising from lamp accidents by insisting upon the sale of safely constructed lamps. We still doubt whether the Government will adopt the somewhat drastic measure recommended by this Committee—namely, to exclude for burning purposes all oil of a flash-point lower than 100°. We have pointed out also that the effect of this recommendation will be to necessitate in addition the use of specially constructed lamps. This will obviously and, as we think, unnecessarily complicate the future legislative requirements thus indicated.

Quite recently our analytical staff has been closely engaged upon the analysis of abortifacients—pills and potions—the results of which are contained in the three previous numbers of THE LANCET, the fourth article appearing in another place in our present issue. This analytical work has thrown no little light upon the unscrupulous and shameful methods which are described in the inquiry under the heading of "Quacks and Abortion: A Critical and Analytical Inquiry."

Under the heading of "Analytical Records from THE LANCET Laboratory" some 115 samples of foods and drugs have been reported upon during the year. This has involved the carrying out of 327 individual analytical determinations. If we add to these figures the analytical work concerned in the special work summarised above, the total number of samples examined reaches 140 and the number of analyses made amounts to no less than 452, which is distinctly in advance of the number recorded last year.

Hospital Abuse.

Our series of special articles on this subject was continued during the year, commencing with the town of Glasgow. Here the advance of sanitation has greatly reduced the death-rate and sick-rate, yet the facilities for obtaining medicine and advice gratuitously are ever increasing. From 1871 to 1880 there were beds provided by the hospitals which amounted to 2·7 beds per 1000 of the population. Since 1891 the proportion equals 4·2 beds per 1000 and if to this we add the fever hospitals and the workhouse infirmaries then the proportion is 9·5 per 1000. Of course this has led to much and manifest abuse and it is calculated that 52 per 1000 of the population received gratuitous medical treatment during the course of twelve months. The proportion of those treated at the public expense was 22·6 and of those treated by the charities 29·3 per 1000 of the population.

From Glasgow our Special Commissioner proceeded to Bradford and there, also, the death-rate has considerably decreased, falling from 21·01 in 1882 to 16·77 per 1000 in 1896. Nevertheless, the number of persons who attend the hospitals and obtain gratuitous medical advice has greatly increased. The evidence collected all went to show that a better class of people now avail themselves of these facilities and an incident was related where one of the members of a hospital staff was invited to a Christmas dinner given in the handsome villa of one of his hospital patients. Then there is also a plethora of trivial cases such as boils, &c. Where there is a medical school it is necessary that the students should see such cases, but as there is no medical school at Bradford persons suffering from such slight ailments ought not to crowd the out-patient department and thus waste the time of the medical staff.

Brighton, again, is a town with a low death-rate and, what is more, a town where there is comparatively little poverty and many wealthy inhabitants. Nevertheless, out of 3704 births registered in 1894, no less than 1240 were attended by one charity. In the same year 38,113 hospital tickets were distributed amid a population of 115,000. The grievances and abuse arising from this state of things were described at length by our Special Commissioner and he related the efforts made by the local practitioners to cope with this difficulty.

Noteworthy energy has been shown by the medical men practising in the Eastern suburbs of London. Here a "Medical Protection Society" was recently formed, and the successful action already taken by this active body supplied the subject-matter of several special articles and reports. These appeared under the title of "The Abuse of Nursing Institutions," for it was against the Plaistow Maternity Charity that the energies of this body were first directed. This is another form of hospital abuse and, as interfering with the midwifery fees which medical practitioners are legitimately entitled to receive, is a very important matter. But the East Suburban Medical Protection Society have dealt with many other questions. They have drawn up a black list of patients who do not pay, they have established a system for collecting debts, they attempt to check unprofessional conduct, and they have insisted on the adequate representation of the medical profession on the boards of management of hospitals, &c. In a word they are engaged in organising medical men for the defence of their economical interests and the honour and dignity of their calling.

The Battle of the Clubs.

Though from time to time we have published reports reaching us from various districts concerning the struggle between the medical practitioners and the medical aid associations we have only made one special investigation on

this subject during the year. This was at Tunbridge Wells, a town from which we had received several complaints. Here, however, the grievance was not so acute as it was found to be in other towns, but the fact that the medical officer of the Friendly Societies' Medical Association did not receive more than 2½*d.* per visit or consultation shows that it was bad enough. Unfortunately there is no medical union in this town, though some of the local medical practitioners have individually acted with great spirit and energy. Still, these isolated efforts are very risky and uncertain in their result and it is time that the medical practitioners of Tunbridge Wells should seek to unite for common action.

Honours to Medical Men.

It now becomes our pleasing duty to record the honours which have been bestowed upon members of the profession during the past twelve months. In the list of those receiving New Year honours the names of six medical men appeared and it was noticeable that four out of the six were associated with Scot h degrees. This was as it should have been, for while last New Year's list was essentially English the Jubilee list was an Irish one. The New Year's list for 1898 contained the names of JOHN STRUTHERS, M.D., F.R.C.S. Edin., LL.D. Glasg., and JOHN BATTY TUKE, M.D., F.R.C.P., F.R.S. Edin., upon whom were conferred knighthoods; of WILLIAM TENNANT GAIRDNER, LL.D., M.D., F.R.C.P. Edin., F.R.S., Physician-in-Ordinary to Her Majesty the Queen in Scotland, who was created a Knight Commander of the Bath; of Brigade-Surgeon-Lieutenant-Colonel GEORGE KING, C.I.E., who was raised to a Knight Commandership of his Order; and of Surgeon-Lieutenant-Colonel SAMUEL JOHN THOMSON and Surgeon-Major FREDERICK FITZGERALD MACCARTIE, who were appointed Companions of the Most Eminent Order of the Indian Empire. On Her Majesty's birthday honours were received by Surgeon-Lieutenant-Colonel J. G. ROGERS, D.S.O., head of the Egyptian Sanitary Department, who was made a K.C.M.G., and Dr. ANDREW MILROY FLEMING, Principal Medical Officer of the British South African Police, who was made a C.M.G. Surgeon-Major-General ROBERT HARVEY, D.S.O., was made a C.B., and Brigade-Surgeon-Lieutenant-Colonel A. M. BRANFOOT, Professor of Midwifery in the Madras Medical College, a C.I.E.

Mashonaland and North-west Frontier rewards were announced on the same occasion and were as follows, as far as decorative Orders are concerned: To be Knight Commander of the Most Honourable Order of the Bath: Surgeon-Colonel GEORGE THOMSON, C.B., Indian Medical Service. To be Companions of the said Most Honourable Order: Surgeon-Colonel EDMOND TOWNSEND, Army Medical Staff, and Surgeon-Colonel GEORGE MCBRIDE DAVIS, D.S.O., Indian Medical Service. To be Companions of the Distinguished Service Order: Brigade-Surgeon-Lieutenant-Colonel CHARLES HENRY SWAYNE, Army Medical Staff; Surgeon-Major JOHNSTON SHEARER, Indian Medical Service; Surgeon-Captain THOMAS HERBERT JOHN CHAPMAN GOODWIN, Army Medical Staff; Surgeon-Captain JOHN FISHER, Indian Medical Service; Surgeon-Captain WILLIAM SELBY, Indian Medical Service; and Surgeon-Lieutenant JAMES HENRY HUGO, Indian Medical Service.

Among the Soudan Gazette honours occur the names of Surgeon-General WILLIAM TAYLOR, and Colonel W. H. MACNAMARA, R.A.M.C., who received the Companionship of the Order of the Bath; and of Lieutenant-Colonel G. A. HUGHES, R.A.M.C., Major E. M. WILSON, R.A.M.C., Major H. B. MATHIAS, R.A.M.C., and Captain C. S. SPONG, R.A.M.C., who received the Distinguished Service Order.

During the year Mr. PEARSON ROBERT CRESSWELL, F.R.C.S. Edin., Lieutenant-Colonel Commandant of the 3rd V.B. Welsh Regiment, was made a Companion of the Bath.

Of the Order of the Hospital of St. John of Jerusalem in England Sir RICHARD DOUGLAS POWELL, Bart., M.D. Lond., Mr. WILLIAM HAMERTON JALLAND, F.R.C.S. Eng., and Surgeon-Major-General WILLIAM ROE HOOPER, C.S.I., were made Knights of Grace.

The Roll of the Royal Victorian Order has been augmented during the year by the names of Sir WILLIAM MACCORMAC, Bart., Sir FRANCIS LAKING, Mr. A. D. FRIPP, and Fleet-Surgeon A. G. DELMEGE, M.D. R.U.I. The two former gentlemen have been appointed Knights Commanders of the Order and the two latter gentlemen Members of the Fourth Class, in recognition of their services in connexion with the accident met with by His Royal Highness the PRINCE of WALES. Staff-Surgeon JAMES LAWRENCE SMITH who attended the late Prince HENRY of BATTENBERG on the *Blonde* was appointed a Member of the Fourth Class of the same order.

Captain CHARLES CHRISTIE FLEMING, R.A.M.C., employed with the Egyptian Army, was made a Companion of the Distinguished Service Order in recognition of his services during the recent operations in the Soudan.

Among the foreign Orders which have been bestowed upon members of the profession during the year the first place must be given to that of the Cross of the Legion of Honour which was conferred upon Dr. BARTEL, a young naval surgeon employed on active service in Upper Dahomey. During the affairs of Nov. 4th and 8th, 1897, while serving with the Borgou column, this officer carried out his difficult duties to the wounded under a perfect rain of arrows. Dr. KESER, Physician to the French Hospital and Dispensary, was made a Knight of the Legion of Honour. Sir WILLIAM H. FLOWER, K.C.B., F.R.C.S. Eng., F.R.S., Director of the Natural History Department of the British Museum, and President of the Zoological Society of London, was the recipient from the German Emperor of the Royal Prussian Order *Pour le Mérite* for Science and Art; and the QUEEN REGENT of SPAIN created Mr. CHARLES LANE SANSOM, F.R.C.S. Edin., a Knight of the Order of Isabella.

Our list is fittingly concluded by the record of the latest addition to the names of medical heroes who have gained the Victoria Cross—i.e., that of Surgeon WILLIAM JOB MAILLARD, M.D. Lond., of the Royal Navy. The decoration was conferred for conspicuous bravery during the outbreak at Candia. On Sept. 6th, 1898, during the landing of seamen from Her Majesty's ship *Hazard* Surgeon MAILLARD, who had disembarked and reached a place of safety, returned through a perfect deluge of bullets to the boat and endeavoured to

bring into safety ARTHUR STROUD, ordinary seaman, who had fallen back wounded into the boat as the other men jumped ashore. Surgeon MAILLARD failed to bring STROUD in only through the boat being adrift and it being beyond his strength to lift the man (who was almost dead) from so unstable a platform. Surgeon MAILLARD returned to his post with his clothes riddled with bullets though he himself was happily unhurt. It is worthy of record that this officer is the only medical man in the Royal Navy holding this much coveted decoration.

Obituary.

In glancing over our Obituary columns for the year we find ample illustration of the many-sidedness of our profession and many proofs of the fact that some even of our busiest practitioners find time to do much public work. There are numerous examples of longevity, though there are too many cases in which the strain and pressure of life brought it prematurely and abruptly to a close. Mr. HENRY HAYMAN, F.R.C.S. Eng., of Stokenchurch, Oxfordshire, a man of high culture, attained the age of eighty-six years but not without a breakdown in his health in mid-age fifty years ago; after a rest he recovered and achieved the age mentioned. Mr. JOHN BARRITT MELSON, M.D. Cantab., a good classical scholar, a preacher among the Wesleyans, a friend of FARADAY, who, as Professor of Natural and Experimental Philosophy in Queen's College, Birmingham, had for pupils the late Archbishop BENSON and the present Bishop of DURHAM, died at the age of eighty-seven years. Mr. JOSEPH JOHN FOX, M.R.C.S. Eng., L.S.A., of Stoke Newington, who found his recreation from the fatigues of practice in the study of the calculus of variations and the dynamics of a particle and who sent five of his six sons into the medical profession, died at seventy-nine years of age. Mr. KESTER EDWARD KNIGHT, M.R.C.S. Eng., L.S.A., died at Southsea at the age of eighty-four years, having been 60 years in practice. Mr. JOHN STEWART, R.N., M.D. St. And., of Perth, a staunch advocate of total abstinence, died at eighty-nine years of age. He had served in the *Bellerophon*, was at the siege of Sebastopol, and had seen much service. Mr. THOMAS GIORDANI WRIGHT, M.D. Leyden, was born in Wakefield and practised there for sixty-six years, reaching the age of ninety years. Mr. ROBERT WALLIS, M.R.C.S. Eng., L.S.A., of Old Ridley, Northumberland, a pupil of LISTER, was an instance of a successful practitioner retiring and successfully assuming all sorts of public functions as Justice of the Peace and District Councillor and remaining active up to the age of eighty-eight years. So was Mr. MAURICE DAVIS, M.D. St. And., who on the loss of his wife retired from a most successful practice and found his solace in the active discharge of magisterial and other duties. Mr. HENRY ALFORD, F.R.C.S. Eng., qualified in 1828 and retained good health up to within a fortnight of his death at ninety-two years of age. Mr. AUGUSTIN PRICHARD, M.D. Berlin, F.R.C.S. Eng., of Bristol, son of the famous ethnologist and an ophthalmic surgeon, died at eighty years of age. Mr. JOHN STEELE PERKINS, F.R.C.S. Eng., of Exeter, died at ninety-one years of age. Mr. GEORGE ROPER, M.D. Aberd., died at seventy-five years after every variety of practice and experience and much travel, through all of which he bore himself well and in a way that called forth a very graphic tribute in our columns from the President of the Royal College of Physicians of London, Sir SAMUEL WILKS. Mr. WILLIAM FREDERICK CLEVELAND, M.D. St. And., of Maida Vale, was at the time of his death President of the St. Andrews Medical Graduates' Association. He was a very much respected practitioner and had filled many offices of honour in the profession. Unfortunately we have had to record many deaths all too premature. Mr. HUGH CALDERWOOD, B.Sc., M.B., C.M. Glasg., of most brilliant promise; DUNCAN JAMES CADDY, M.D. Durh., of Her Majesty's Colonial Service; and Mr. WILLIAM FRANCIS ADAMS, L.R.C.P. Lond., M.R.C.S. Eng., senior assistant medical officer of the Cornwall County Asylum, all died young—the last, only twenty-six years of age, dying in his bed in syncope from fatty degeneration of the heart. Mr. THOMAS W. MUIR LONGMORE, M.R.C.S. Eng., L.R.C.P. Lond., son of the late Sir THOMAS LONGMORE, died at Luxor at the age of thirty-four years. One of the saddest deaths in the year was that of Mr. JOHN ANDREW MALCOLMSON, M.D. R.U.I., the gifted medical officer of health of Middlesbrough, who at the age of forty-six years died at his post, so to speak—that is to say, from pressure of work in the great outbreak of small-pox, bravely fighting the epidemic. Mr. LEONARD REMFRY, M.D. Cantab., died at the age of thirty-eight years. The death of Mr. HENRY CASE, M.R.C.S. Eng., L.S.A., at the early age of forty-five years, whose work in the Leavesden Asylum and elsewhere had been so good, was a misfortune for the insane. So was the death of Mr. HACON, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A., of Christchurch, New Zealand, who was medical officer of an asylum but who found time to distribute through the colony a large quantity of lymph obtained from calves inoculated by himself.

Some very distinguished members of the profession have passed away in the course of the year. In an early number of THE LANCET we had to record the death of Dr. GREGORY ANTONOVITCH ZAKHARIN of Moscow who enjoyed the favour and confidence of the late Tsar and who had the largest and most lucrative practice in Russia. Though Dr. ZAKHARIN did not escape the fierce criticism which is apt to gather round the work of Court physicians when it fails to achieve impossibilities, he will be long remembered for his rare powers of diagnosis and his valuable clinical lectures. M. JULES PÉAN died from influenza at the age of sixty-seven years. He was a very remarkable man. The son of a miller and often supporting himself as a student by coaching his fellow students, he attained the very highest eminence as a surgeon, especially in abdominal surgery. He laughed at criticism. He is said, probably with exaggeration, to have made £40,000 a year. Dr. JAMES MURPHY'S graphic notice of him in our obituary columns is worthy of being re-read. In August we had to record the death of Professor WILLIAM PEPPER, M.D., Provost of the University of Pennsylvania, Professor of the Theory and Practice of Medicine, and editor of a System of Practice of Medicine by American Authors. The cause of Higher Medical Education in the States and all good causes have lost by his death a valued friend. About the same time we had to report the death of an equal friend of medical education and reform in

India, KAIKHOSRO NASARVANJI BAHADHURJI, M.D. Lond. The event evoked a great expression of respect from the native members of the profession. The medical world of London has lost in the course of the year some of its most active and conspicuous members—amongst others Sir RICHARD QUAIN, Bart., M.D., F.R.C.P. Lond., F.R.S., &c., President of the General Medical Council, and Mr. ERNEST HART, M.R.C.S. Eng., D.C.L. Durh. (*hon. caus*). Sir RICHARD QUAIN'S age at death was eighty-two years. His long and intimate connexion with the Royal College of Physicians of London, the London University, and the General Medical Council, his valuable services to these bodies, and his position in society and in the profession are matters of history. His pathological work and his great "Dictionary of Medicine" together with the force of his personal qualities will secure his not being forgotten for many years. Mr. ERNEST HART was not known much in connexion with practice but as the editor of the *British Medical Journal* and one who in many ways brought the influence of the profession to bear on public questions he will be remembered. In our first number of the year we recorded the death, at the age of seventy-five years, of WILLIAM WADHAM, M.D. St. And., F.R.C.P. Lond., &c., who will be long and well remembered as Dean of St. George's Hospital Medical School and a good type of the physician and teacher of his day. Mr. CHARLES WEST, M.D. Berlin, F.R.C.P. Lond., so well known for his works on Diseases of Women and Children and as a chief promoter of the Great Ormond-street Hospital for Children, died at the age of eighty-two years. We have lately had to record the death of a very distinguished member of HER MAJESTY'S service and of the medical profession—that of WILLIAM CAMPBELL MCLEAN, C.B., LL.D., M.D. Edin., Surgeon-General, Indian Medical Service, Honorary Surgeon to the Queen. He was of Highland descent and was born in 1811. He went first to India in 1833. He served in China in 1840 but in 1843 he returned to India. When he came back to England in 1855 he had been absent on continuous service for seventeen years. He was appointed the first superintendent of the first Vernacular School in India, the students being all Mahomedans. On the foundation of the Army Medical School at Netley he was appointed to teach tropical diseases and it is estimated that 1476 medical officers received instruction from him. The mere enumeration of such services is an education to those who stay at home at ease. Of the same kind and significance was the life of Surgeon-General ALEXANDER SMITH, C.B., M.D., L.R.C.S. Edin., who died at the age of seventy-four years, suddenly, after long and distinguished service in the Crimea, at Sebastopol and at the Redan, and against the Afridis and other tribes in the Afghan war of 1878. Fleet-Surgeon CHARLES ALBERT MACAULAY, M.D. R.U.I., died at Wei-hai-wei. He was a man of distinguished merit and had been present at the bombardment of Alexandria and at Tel-el-Kebir. Amongst home practitioners whose deaths have been much regretted we must not forget that of Mr. EDMUND LUND, F.R.C.S. Eng., of Manchester at the age of seventy-five years, or that of Mr. JOHN HODGSON WRIGHT, M.R.C.S. Eng., of Halifax, from neurotic angina following influenza. Mr. WRIGHT was a very charitable man, his favourite charity being that of providing nurses for the poor and a home for twelve incurable patients.

In the closing weeks of the year we have had to record the life and death of two members of the profession of the very highest merit—of Sir WILLIAM JENNER, Bart., M.D., F.R.C.P. Lond., F.R.S., and ALFREDO ANTUNES KANTHACK, M.D., F.R.C.P. Lond., F.R.C.S. Eng., Professor of Pathology in the University of Cambridge. The death of CHARLES JOHN HARE, M.D. Cantab., F.R.C.P. Lond., and that of WILLIAM MUNK, M.D., F.R.C.P. Lond., Harveian Librarian of the Royal College of Physicians of London, occurred at ripe ages, but leave a great blank in the College of Physicians and in the profession.

There are many other names in our own Obituary columns which deserve to be recalled here; but we must forbear. We shall make one exception in favour of a lady practitioner, MABEL ELIZABETH WEBB, M.B. Lond., who won golden opinions from all who knew her and worked with her as the curator of the museum at the Royal Free Hospital. For fourteen years she had laboured under symptoms of gastric ulcer, temporarily cured, it seemed, by a holiday in Egypt, only to return under the hospital conditions of her life at home.

Such are specimens of the men and women moulded in the profession of medicine. Many of them, it seems to us more than the average, were called to their account suddenly. But to true servants working "ever as in the Great Taskmaster's eye" that does not matter. By a plentiful use of their talents in all the great spheres of life—in the army, in the fleet, in private practice—they have sustained the honours of the profession and earned the "well done" of the Master whom most of them served in true piety and humility.

Annotations.

"Ne quid nimis."

A GIFT TO SCIENCE AND HUMANITY.

THE announcement which appeared in the morning journals of Dec. 23rd that Lord Iveagh had offered half a million to be devoted to two great objects of public importance may be said to have excited a thrill of admiration throughout the country. It was not the magnitude of the gift alone that evoked this feeling, although in point of munificence it has been seldom excelled. It was rather the spirit which animated the donor and the objects which he had selected as most worthy to be furthered by his wealth which fastened on the imagination and the sympathy of the people. Take first his benefaction of £250,000 to his own city. For long has Dublin striven to improve the sordid conditions under which so large a proportion of her inhabitants dwell and much credit is due to the municipal and sanitary authorities for what has already been effected towards the improvement of those conditions with the gratifying result of a diminishing sickness and death-rate. But very much remains to be done; many slums and rookeries need to be swept away and more healthful dwellings to be erected before the metropolis of Ireland can boast of her beauty or her health. Now comes this munificent offer of Lord Iveagh, a representative of a family to whom already Dublin owes much in the matter of public

improvements, and with the aid of this gift a whole insanitary area will be replaced by dwellings fit for the habitation and the health of the artisan class. There is a poetic justice as well as a spirit of generosity in this rendering of their wealth by Lord Ardilaun and Lord Iveagh to the city with which their interests are bound up and their fortunes knit. Dublin may well be proud of having such worthy sons who thus prove to the world that they are not unmindful of the claims of citizenship. Had Lord Iveagh limited his bounty to this great local scheme his name would have still been highly honoured, but how much greater is the recognition of his generous deed when simultaneously it is announced that he has also devoted a like sum to another and wider purpose. With one hand he assists the practical operations of the sanitary reformer just where this aid is most needed; with the other he endows science with the means for prosecuting researches upon diseases that flourish under the conditions against which the sanitarian strives. Surely this is the true spirit of philanthropy combined with practical wisdom and foresight which makes it all the more worthy of public approbation. The Jenner (formerly known as the "British") Institute of Preventive Medicine, founded by Lord Lister and other distinguished men, has, like all scientific undertakings in this country, had to exist upon private contributions. Crippled by lack of material resources it has only quite lately entered into possession of appropriate buildings and its association with the name of Jenner would, it was hoped, lead to a more widespread recognition of its objects besides claiming support from those who regard the work of the founder of vaccination as beneficent in itself and as the precursor to the scientific researches upon the origin, nature, and prophylaxis of infective disease which originated with Pasteur and which now embrace so wide a field. By Lord Iveagh's generosity the Council of the Institute—or rather the trustees who will be appointed by that Council, the donor, and the Royal Society—will have at their command resources ample enough to establish the Institute on a permanent basis and to expand its useful work. The Institute will emerge from its comparative obscurity and will become a centre of scientific activity equal to any of the State-established laboratories of foreign countries, but founded and maintained by private enterprise. The letter addressed to the press by Lord Lister, the chairman of the Council, and Professor Roscoe, the treasurer, in which the munificent gift was announced stated in general terms the conditions under which it was offered and accepted. Here, too, as with regard to his Dublin benefaction, Lord Iveagh has marked his liberality in giving by an equal liberality in acting. There is no narrow restriction imposed on the trustees as to the manner in which they are to dispose of this rich endowment. The extension of buildings, the adequate remuneration of the staff, the prosecution of scientific inquiries into disease at home and abroad, the foundation of fellowships and scholarships to encourage the prosecution of these studies, and the provision for the maintenance of the establishment—these are conditions which can be interpreted in the freest spirit and which we may be sure will be faithfully carried out. In recognising the great value to medical science of this memorable gift we cannot do better than quote from the letter referred to, the expressions in which will be endorsed by all who value the labours of science. Lord Lister and Professor Roscoe say: "Lord Iveagh, in our opinion, deserves the gratitude of the nation for thus munificently providing for the cultivation in the British dominions of biology and the allied sciences for the good of mankind in an institution which thenceforth will compare favourably with any similar establishment in other parts of the world." We may rejoice, too, at the evidence which this noble gift shows of the estimation in which the life-saving labours of those who pursue science in the spirit of Jenner or of Pasteur or of Lister are coming to be regarded by the world at large. When we consider how much has been done by men of science to enlarge our knowledge of diseases, how often that work has entailed sacrifice of self, and how poorly requited it often has been we may well take heart at the awakening of public sympathy in those labours. Professor Virchow on his return from his visit to England last October has reprinted the address which he delivered in London at the International Medical Congress in 1881 and has appended some remarks which show that he has been struck by the signs of this appreciation here. He especially dwells upon the admirable laboratories at Liverpool at the opening of which he assisted and expresses his gratification at the fact that they were established by the munificence of a private individual—the Rev. S. A. Thompson-Yates, whilst the occasion of their inauguration was celebrated by the leading citizens. May we not regard, then, with some justifiable pride this fact of the practical encouragement of scientific research by our wealthy compatriots and trust that the benefactions of Lord Iveagh and Mr. Thompson-Yates will be followed by others devoted to the like objects of the common weal?

SIX DAYS' BICYCLE RACE IN NEW YORK CITY.

ANOTHER exhibition of human beings bringing themselves to the level of animals for the sake of incommensurate gain and of unenviable fame has just taken place in New York City. We say incommensurate gain because no sane person would contend that even the sum of money received by the leaders can compensate them for the harm which such extraordinary exertion, coupled with the fearful strain put upon the nervous system by the want of sleep, must do them both in body and mind. The fame, too, resulting to the participants in a contest of this description is unenviable, because every sensible person has the feeling that it is pitiable rather than praiseworthy for a man thus to prostitute his physical powers. If any good end were reached the case would be different, but we are already well aware that man can easily outvie in staying endurance any other animal. One race of this kind is quite enough. Emulation is all very well, but when it is carried to the lengths recently witnessed in New York it is neither more nor less than inhuman. The reports given in the "yellow journals" of the latter stages of the six days' contest were simply revolting and enough to occasion doubt as to whether instead of living at the end of the nineteenth century we had not slipped back to 200 B.C. But when all is said and done the blame of such exhibitions being possible rests on the heads of those who are willing to pay to witness men in all cases injuring themselves and in some instances probably shortening their lives by many years. The *New York Herald* in a leading article in its issue of Saturday, Dec. 10th, expresses the sentiments of the majority of the rational members of the community in the following words: "The bicycle race which is being so hotly contested by the leading competitors will soon be ended and the foolishly coveted prize of championship will be awarded accordingly. The lesser lights will take their respective places in the line of relative merit and the question of brute force and misapplied pluck as against reason and moderation will be answered for a time at least. To such as have read from day to day of the sufferings of the riders and the overstrain of their physical energies it must be plain enough that the victory, great as it may appear to the parties most directly interested, will be dearly bought. ..... Stimulated by music, goaded by cheers, and sickened by the foul emanations of an ever-present crowd, the pitiable victims of the showman, gatekeeper, and trainer receive no more consideration than the racehorse with spur in side or whip to neck or the gladiators of old who trusted to the

mercy of the down-turned thumb when nothing more was left. Can we wonder that the riders fall from their wheels from sheer weakness, gulp their food as they go, wobble along in dazed unconsciousness, and cry for the sleep they dare not take. While the race shows in a great degree what persistent training can accomplish in keeping the men on the track until the finish in spite of crippled limbs, stiffened muscles, aching stomachs, and inflamed eyes, the ultimate damage to the health of all the participants must sooner or later be manifest either in premature stalling of energy or the insidious collapse of progressive invalidism. At the best what will the results of the race demonstrate? Nothing more than the fact that man, the noblest work of God, with a physical organism unequalled in its adaptability to everything high and glorious, is willing to pedal round a boarded ring for days and nights merely to prove that he can outog a dog on the treadmill or tire a horse on his own track. The absurd interest manifested in the outcome of the struggle proves the necessity of educating the public to a higher appreciation of what is real sport and healthy athletics. It is against the gross abuse of the thing as done at the Garden that every sensible person has a just right to complain. ..... After the last bicycle tournament many of the participants were compelled to keep their beds for weeks in order to recover even partially from the effects of the wilful and persistent overstrain of their strength. It is by no means unlikely that a similar experience awaits some of those who are now being praised for their staying powers, long stretches, and desperate spurts." As will be observed the foregoing remarks were made before the conclusion of the race. It may be mentioned that the winner succeeded in breaking the record, that he covered more than 2000 miles in the six days, that several of the other competitors had to be taken off the course in an exhausted and broken-down condition, and that the organisers of the contest are stated to have netted more than £6000 clear profit.

THE VACCINATION RETURNS OF THE LOCAL GOVERNMENT BOARD.

THE vaccination returns published in the supplement to the annual report of the Local Government Board refer to the year 1895. There is no doubt that this unavoidable delay robs them in some measure of their interest, especially under present circumstances. Yet they contain much useful and suggestive information. The proportion of births "not finally accounted for" and conveniently looked on as representing default, amounted to 20·5 per cent. of the whole. In the metropolis the figure was 24·9 per cent. and in the provinces 19·8 per cent. The way in which default has varied since the Act of 1871 came into operation is shown in the following table of percentages:—

—	Metropolis.	Rest of England.	—	Metropolis.	Rest of England.
1872	8·8	4·5	1884	6·8	5·3
1873	8·7	4·2	1885	7·0	5·5
1874	8·3	4·1	1886	7·8	6·1
1875	9·3	3·8	1887	9·0	6·7
1876	6·5	4·0	1888	10·3	8·2
1877	7·1	4·1	1889	11·6	9·6
1878	7·1	4·3	1890	13·0	10·9
1879	7·8	4·5	1891	16·4	12·9
1880	7·0	4·5	1892	18·4	14·3
1881	5·7	4·3	1893	18·2	15·7
1882	6·6	4·5	1894	20·6	19·0
1883	6·5	4·9	1895	24·9	19·8

Unsatisfactory as these figures are it is certain that if they could be brought up to date they would be much more so, something like 30 per cent. being now the estimated amount of default. The default is, of course, most unequally distributed. Taking the counties, the Leicestershire deficiency is no less than 76·5 per cent., and Bedfordshire with 75·4 per cent. comes very close at its heels. Northampton takes third place with 63 per cent., and then there is a big drop to 40 per cent. in the small county of Radnor (the only Welsh county which shows very badly), and 35 per cent. in Derbyshire. The best figures are found in Anglesey (3·0 per cent.) and Westmoreland (3·4 per cent.), and these were in 1895 the only two counties which had a percentage lower than that of the provinces as a whole in the best year, 1875, when the default was only 3·8 per cent. In the metropolis the years of low-water mark were 1881 with 5·7 per cent. and 1876 and 1883 with 6·5 per cent. The educative influence of a small-pox epidemic has no doubt much to do with the figures for 1881 in London. In 1895 the worst unions in London were Bethnal-green, 73·0 per cent.; Hackney, 63·4; Mile End Old Town, 63·1; and Shoreditch, 47·5. The best were Woolwich, 4·7; Whitechapel (which has now, alas, gone far astray), 5·3; and George-street Hanover-square, 5·8. In the provinces Barrow-on-Soar in Leicestershire (87·3 per cent.) and Leighton Buzzard in Bedfordshire (86·3 per cent.) share a bad pre-eminence. No less than fourteen unions show a default of over 80 per cent., 18 of between 70 and 80 per cent., 13 of between 60 and 70 per cent., and 14 of between 50 and 60 per cent. In only 69 unions is the default less than 5 per cent., and in 174 it is between 5 and 10 per cent. It is for the public welfare that the facts with regard to popular watering-places and health resorts should be known and it is a great pity that vaccination is being so sadly neglected in certain of these. Eastbourne shows a default of 70 per cent., Scarborough of 59·9 per cent., and Cheltenham of 38 per cent. Health-seekers who do not choose to take advantage for themselves and their families of the great protective power of revaccination cannot safely afford to neglect such figures as these, nor can they be neglected by medical men when consulted by patients as to the choice of a permanent or temporary place of residence. But the fact is that independently of health resorts, vaccinated or unvaccinated, the opportunities for attack by small-pox are likely now to increase so much throughout the country that it is the duty of every parent who cares for the welfare of those who are dependent upon him to see that he obtains for every one of them that protection which efficiently carried out vaccination and, where age renders it necessary, revaccination are so well calculated to afford.

NETLEY AS A SCHOOL FOR TROPICAL MEDICINE.

OUR readers have no doubt noticed in the controversial correspondence which has been going on regarding the proposed establishment of a school and hospital for the study of tropical disease in connexion with the Branch Seamen's Hospital that attention has been called to the advantages which the Netley Hospital and School afford in this respect. Although it seems to be assumed that the sanction of the War Office could not be obtained for the purpose no one, as a matter of fact, seems to have taken any steps to apply for it. Moreover, it is alleged that the Netley institution is unsuitable for the purpose; that it is too far from London; that the course of instruction followed there, however well adapted it may be to officers of the British and Indian Medical Services, is unnecessary and unsuitable for candidates for the Colonial Medical Service; and that in point of variety of cases illustrative of tropical disease it would not fulfil the necessary requirements. It seems to us that the last-named in the foregoing objections is the only one of any force. Let us, however, examine them a little more closely. The Royal Victoria

Hospital is a large military hospital to which sick and wounded soldiers are relegated from all parts of the world wherever soldiers are stationed and numerous cases of malarial disease in all its forms and dysentery are nearly always forthcoming, together with diseases of the liver including abscess of that organ. An excellent bacteriological laboratory, microscopes, and all appliances for the scientific investigation of disease are available, together with a pathological museum. Practical instruction is systematically given in the microscopical examination of the various fluids and tissues of the body, including of course the examination of the blood for the detection of the plasmodium malariæ. The instruction is afforded by men practically acquainted with tropical disease and there are always present and doing duty in the hospital wards medical officers who have had foreign service and experience in various parts of the world. Of course the distance of Netley from London would be prohibitory to its being used by residents in London, but why should not candidates for the Colonial Medical Service be required to go through a course of instruction in tropical medicine and remain at Netley whilst doing so? There is no reason, moreover, why such candidates should not confine themselves to this work without entering upon that connected with the more purely military course, unless they desired to do so in the direction of practical hygiene which would be very much to their advantage. If Netley Hospital does not offer all the varieties of tropical disease that could be desired it nevertheless affords a larger amount of tropical disease and more facilities for studying that subject than could probably be obtained elsewhere. For all those who were not seeking to enter the Colonial Medical Service but were desirous of practising in the colonies there would still remain open to them for clinical study the Seamen's Hospital at Greenwich and its Branch, as well as the metropolitan hospitals and such bacteriological laboratories as that at King's College. It is, we think, to be regretted that, instead of having years ago selected Netley as the site for our largest military hospital with its Army Medical School, London was not chosen for the purpose. The school might then have formed a teaching institution for a united medical service and for all medical officers in the employment of the State. The hospital and its attached school would then have been more largely available for all concerned and the hospital might have been fully utilised as such all the year round which is not, we believe, the case with the Royal Victoria Hospital at Netley. It is obviously too late, however, to think of this now; but that is no reason why its sphere of usefulness should not be enlarged and developed in the public interest and in that of the Government.

THE PLAGUE COMMISSION IN INDIA.

THE pressure on our space entailed by the "Annus Medicus" compels us to hold over the weekly letter from our Special Correspondent in India. But one piece of news in his communication is so interesting that we do not delay its publication. He writes under date Dec. 10th:—"The Commissioners sitting at Bombay on Dec. 5th examined Mr. R. H. Vincent, C.I.E., the Commissioner of Police. He stated that in the months of May, June, and July of 1896 a large number of Sadhus (ascetics) came to Bombay from Kumaon in the Himalayas and that they lived in Mandvie. They were subsequently sent by some rich Banias to Nassik, a holy place of pilgrimage for the Hindus. He stated that the mortality during their stay was very high and he was of opinion that the plague broke out in Bombay in July and not in September. This evidence is so extraordinary and has been so unexpectedly given that it has excited considerable comment. The facts have not been published before. That this information should have been kept dark for over two years and then made known by the head of the police in Bombay is passing strange, more especially as Dr. Weir's two annual health reports, Mr. Nathan's four-volume official report, and numberless minor contributions have all appeared without allusion to any particulars of such importance."

THE NATIONAL HEALTH SOCIETY AND PREVENTABLE DISEASE.

WE have received two little pamphlets written by Dr. Christopher Childs for the National Health Society. The one deals with typhoid fever and the other with tuberculosis. They set out in clear and simple language the precautions to be taken by those who have charge of persons suffering from any manifestation of the above diseases and in the case of tuberculosis reference is made to the necessity of keeping a strict watch over milk- and meat-supplies. If the average citizen can only be brought not only to read these instructions but also to act up to them the National Health Society may pride itself upon an eminently useful piece of work.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

THE Medico-Chirurgical Society of Norwich has now been in existence for fifty years. It was originated in 1848 under the first presidency of Mr. John Greene Crosse with the name of the Norwich Pathological Society. After some years this was amalgamated with the Norwich Medical Book Society with the new name of the Norwich Medico-Chirurgical Society, under which title it now exists. The result of this amalgamation was that the members of the medical society became possessed of a large and very valuable library. This being the jubilee year of the society the president (Mr. W. E. Wyllys of Yarmouth) most hospitably invited its members to a banquet at the Royal Hotel, Norwich, on Dec. 8th to celebrate the occasion—an invitation which was accepted by seventy-eight gentlemen, including three of its honorary members—i.e., Dr. Robert Barnes, Mr. Richard Barwell, and Mr. A. Pearce Gould of London and two of the earliest members, Sir Peter Eade and Mr. W. Hankes Day. It may be mentioned that the Norwich Medico-Chirurgical Society has 136 members and it now includes almost the entire profession of Norfolk as well as many residents in Suffolk and adjacent districts.

THE PLAGUE ON THE "GOLCONDA."

A MILD case of plague is stated to have been discovered on the steamship *Golconda* at Plymouth on Saturday last. The *Golconda* is a British India Company's ship sailing from Calcutta and the case did not manifest itself until Marseilles was reached, a fact which is at variance with our usual theories concerning the incubation period of plague. Due precautions having been taken by the authorities the *Golconda* was allowed to proceed to London, where she underwent the usual processes of disinfection in such cases. The patient was left at Plymouth, the report current about his arrival in London as well as the statement that a second case was discovered on board being unfounded.

WE have received the Medical Directory for 1899. In a future issue we shall give a more detailed notice of this most useful work. We may, however, mention that the Directory for 1898 comprised 1936 pages, while that for 1899 comprises 1960 pages

THE annual banquet of the Worshipful Company of Plumbers, to meet the Lord Mayor and Sheriffs of the City of London, which was postponed on account of the death of

Sir Stuart Knill, has now been fixed for Wednesday, Jan. 18th. The guests will include the representatives of various sanitary and educational bodies and others who are in sympathy with the Company's efforts to promote the higher and more systematic technical instruction of plumbers.

QUACKS AND ABORTION:
A CRITICAL AND ANALYTICAL INQUIRY.

IV.[1]

AT the conclusion of the recent trial of blackmailers at the Old Bailey Mr. Justice Hawkins sentenced two of the infamous Chrimes brothers to twelve years' penal servitude and the youngest of them, who had possibly been led away by the elder ones, to seven years' penal servitude. Their case, as we have already pointed out, exemplifies in a strikingly complete manner the evils which may result from the advertisements that drew our attention to the trade in "female remedies" and caused us to commence our inquiry into its methods.

More particularly the case proved beyond all doubt, firstly, that very nearly all the persons who buy medicines advertised for "irregularities" buy them in the hopes that by their aid they will be enabled to procure abortion. This is clearly shown by the vast number of women who allowed themselves to be blackmailed without any attempt at resistance. Certainly in cases of blackmail innocent, or comparatively innocent, people who have placed themselves in compromising circumstances pay to avoid publicity or some charge not obviously easy to refute; but no one can believe that the most ignorant woman suffering from amenorrhœa, neither pregnant nor having incurred the risk of pregnancy, would submit to extortion because she had taken an emmenagogue mixture or would believe that to take such a mixture was a criminal act. The mass of women having guilty consciences who sent money to "Charles J. Mitchell, Public Official," bears out our observations as to the small number of women who could possibly desire to bring on menstruation if those pregnant were eliminated. Secondly, we have repeatedly referred in these articles to the fact that it was the ignorant whom the trade in abortifacients, or pretended abortifacients, was likely to tempt into crime. Ingeniously worded as the letter of the Chrimes brothers undoubtedly was, few but the ignorant, guilty or not, would have imagined that "Charles J. Mitchell, Public Official," was an officer of the law trying to extort money by virtue of his official power. Thirdly, we have spoken of the enormous trade done in these concoctions. In the course of the trial of the Chrimes brothers it was elicited that thousands of pounds had been spent on advertisements. Sir Henry Hawkins drew attention to the fact that £800 had been received in three or four days (including presumably blackmail and purchase money), while a letter-box put up expressly by the prisoners at one of their offices was produced in court which must have contained at least 6 or 7 cubic feet of space to accommodate their correspondence. Fourthly and most obviously, the case illustrates the dangers of blackmail connected with this trade which we have already stated must exist. It is difficult to prove the prevalence of blackmail for obvious reasons, but it is known to be a means of livelihood for many persons in London and elsewhere who are never convicted, and we believe it to be an important source of income to most of those persons who carry on businesses connected with sexual vice, such as, for example and not to exhaust the list, indecent exhibitions, the sale of alleged cures for defective virility, and so-called massage establishments.

The more prudent offenders escape—for a time at any rate. It was not their attempts at blackmail that brought the Chrimes brothers to trial but their wholesale and reckless adoption of it. Threatening, as they apparently did, all the hundreds of women who had purchased goods from them, they naturally lighted on some innocent of any wrong design in purchasing the medicine and of sufficient education and courage to see that their only safe and prudent course was to inform the police. We conclude our comment on this case by printing one of the advertisements which was before us when we began our inquiry through which we should in due course have opened up a correspondence with the Chrimes brothers had not their arrest rendered this unnecessary:—

Acknowledged by Ladies throughout the World to be worth a Guinea per Tabule.

LADIES ONLY.

THE "LADY MONTROSE"

MIRACULOUS

FEMALE TABULES

Are positively unequalled for all FEMALE AILMENTS. The most OBSTINATE Obstructions, Irregularities, etc., of the female system are removed in a few doses. Being SPECIALLY prepared, they are guaranteed STRONGER in action than the strongest (or "No. 2" and "3") LIQUID Female Mixture, Pill, or Fluid Medicine on earth. Failure is impossible. Post free, under cover, with full directions and advice 4s. 6d., with SWORN EVIDENCE as an absolute guarantee enclosed in every case. One case sufficient. A special and valuable OUTWARD Remedy sent free.

A FEW TESTIMONIALS FROM MANY THOUSANDS.

"Am overwhelmed with 'delight' to say that your miraculous (for miraculous they are) Tabules painlessly restored regularity before taking one quarter of a box."—Mrs. N., Long-lane, Orford, Warrington.

"After taking the last dose late Saturday night I was quite well early Sunday morning."—Mrs. C., Mount Pleasant, East Hill, Dartford.

"I heard from my sister, Mrs. Weentell, to say they had proved successful. She is exceedingly grateful."—Mrs. H., Northern Hospital, London.

"The Tabules you sent were marvellous. I was advised by a friend who had been relieved herself after a few doses. Mine being a case of MONTHS, I tried a box, and after taking a few doses I was astounded to find myself relieved. I had spent a great deal in 'FAMOUS' FEMALE MIXTURE, etc., but only had pain and no relief. I enclose 4s. 6d. for another box for another lady friend."—Mrs. L., Merton-street, Huddersfield, Yorks.

THE ABOVE TESTIMONIALS (AND THOUSANDS OF OTHERS) ARE EACH SEEN AND SWORN TO, UNDER OATH, BEFORE ONE OF HER MAJESTY'S COMMISSIONERS FOR OATHS, TO BE TRUE AND GENUINE.

Don't delay. Send To-day for full particulars, and absolutely Conclusive Proofs. Be cured without trouble and expense with these startling Tabules. Address, H. A. N. MONTROSE, 64, Imperial Buildings, Ludgate Circus, London.

CAUTION.—Don't waste money on useless "Famous," "Important," etc., Fluid mixtures, Cones, "Without Medicine" Remedies, "Indispensable" Pills, etc. It is utterly impossible for these weak "Water and Medicine," etc., Remedies, to be as strong as my powerful, irresistible Compressed Tabules, and I have a Certificate GUARANTEEING these Tabules.

It will be seen that the above advertisement differs in no material respect from the examples that have afforded the materials for the rest of our inquiry. Like many of the other advertisements—as, for instance, that of Ottey—it says nothing of the more expensive medicines to be urged upon the victim when once communication is established. Like that of the vendor of Irristum it seeks to dupe the credulous with a statement that the testimonials are sworn on oath to be genuine. Its testimonials are of the same pattern as those concocted by other vendors. If the purchasers of H. A. N. Montrose's tabules fell easy victims to the blackmailer, those who buy from any other persons carrying on the same trade have been and will be always in danger of blackmail also. We remind our readers that in our first article we alluded to an advertisement received from a quack to whom we had not written and who alleged, no doubt truly, that he had bought our name and address (which was not the name of this journal or the address of this office) from one of the others to whom we had written. The bearing of this transaction on the danger of blackmail is so obvious that no further comment upon it is needed. We now conclude our analyses of the various pills and potions for which we applied.

H

The advertisement in this case was as follows:—

Dodd's Female Pills.—The Proprietor, who was for several years at THE HOSPITAL FOR WOMEN, SOHO, LONDON, has never known them to fail in removing the most obstinate cases of IRREGULARITIES in either MARRIED or SINGLE WOMEN. REMARKABLE TESTIMONY. 96,000 Boxes of these Wonderful Pills were sold last year through recommendations alone of NURSES and PATIENTS of THE HOSPITAL FOR WOMEN.

In Boxes 1s. 1½d., 2s. 9d., 4s. 6d., and 11s. each, of all Medicine Vendors. ASK for DODD'S. INSIST ON HAVING DODD'S. Or post free from JEFFERSON DODD, CHEMIST. CHIEF DEPOT: 70, Tottenham Court-road, London, W. Branch Depot: 123, Judd-street, W.C., near King's Cross.

Our letter represented the writer as desiring a box of pills for an "obstinate case," as being an unmarried woman, a

[1] Articles I., II., and III. were published in THE LANCET of Dec. 10th, 17th, and 24th, 1898, respectively.

servant, while it further asked for the pills to be packed secure from observation. As a matter of fact they arrived in a General Post Office envelope, that in which they were originally despatched having burst in the post. The advertisement sheet accompanying them referred largely to Mr. Dodd having been connected with the Hospital for Women, Soho-square. It stated among other things that "Dodd's Female Remedies are recognised by the most eminent medical authorities in London on Diseases of Women as being the safest and most beneficial Medicines that science, skill, and long years of practice have been able to discover for the cure and relief of complaints peculiar to the Female Sex." We note that Mr. Dodd states that 95,000 boxes of his pills were sold last year through recommendations alone of nurses and patients of the Hospital for Women. We think the authorities of the hospital in question would be well advised to try conclusions with Mr. Dodd as to his right thus to use the name of their institution.

Analysis of DODD'S FEMALE PILLS.

Moisture, 6·3 per cent.
Organic substances, 38·8 per cent.
Mineral matter, 54·9 per cent.

As will be seen these pills contain more than half their weight of mineral matter which was found to consist chiefly of iron. On incinerating, however, the pills in a platinum basin a marked green flame occurred characteristic of boron compounds.

The alcoholic extract yielded several well-marked reactions characteristic of aloes.

On treatment with potash an odour like myrrh was noticed. There was no evidence of poisonous metallic salts.

The important constituents, then, of these pills are iron, aloes, and probably borax. With regard to the second it should be mentioned that already this year evidence has been given at an inquest to the effect that a woman had been poisoned by the enormous purgative doses of aloes that she had swallowed in taking so-called Female Pills. With regard to the indications of borax present we have only to quote Squire's Companion to the British Pharmacopœia where borax is classified as an ecbolic "which promotes the contraction of the uterus and facilitates the expulsion of the contents."

I

The following is the next advertisement which attracted our attention. We may find space to discuss hereafter the extent to which it is the duty of proprietors or editors to consider the nature of the advertisements appearing in their papers and the extent of their power to detect objectionable qualities in the trade advertised from the advertisements themselves without further inquiry or recourse to extraneous sources of knowledge. We submit, however, to the good sense of our readers that to call such notice as that we now print "suggestive" would be to employ an unnecessarily mild term to it.

AN HONEST MEDICINE.

Dr. Davis's Famous Female Pills. Pearl-coated and Tasteless. Most efficacious and reliable. No Irregularity or Obstruction can resist them. They possess a world-wide reputation as A BOON TO WOMANKIND.

In boxes 9½*d.*, 1*s.* 1½*d.*, 2*s.* 9*d.*, and 4*s.* 6*d.* Prepared only by Dr. Davis, 309, Portobello-road, London, W., by whom they will be forwarded free from observation on receipt of Postal Order, or order of any Chemist.

SENT FREE.—Dr. DAVIS'S little Book for Married Women most invaluable, on receipt of a Stamped Addressed Envelope.

These pills were among the least expensive we have had experience of in our inquiry, for we selected those at 9½*d.* per box and ordered them in the usual terms, asking for secrecy, the purchaser being represented as a servant. We referred in our first article to a printed slip which accompanied these pills when we received them; from it we learn that "Dr. Davis" compounds them of varying strengths, some proclaimed to be of "Special Strength" being priced at £1 2*s.* He states that he gives advice free on certain evenings and says in a note that "these Pills must not be taken by those expecting to become mothers." He also says: "Dr. Davis's Famous Female Pills are the greatest preventive in the world; they should be taken four or five days before every month." He further marks as "very important" a warning that his pills "are not intended, and should not in any case purge," and he appends an advertisement of a book entitled "How to Limit your Family and Woman her Complaints." The analysis of what he sent us is as follows; we did not correspond with him further or test his pills of extra strength at £1 2*s.*

Analysis of "Dr." DAVIS'S PILLS.

Moisture, 9·75 per cent.
Organic substances, 56·25 per cent.
Mineral matter, 34·00 per cent.

As in most other cases, the mineral residue was practically all iron. On employing solvents with the pills residues were obtained which gave a good response to the reactions characteristic of rhubarb. The pills contained also an aromatic substance with a smell resembling oil of roses. Neither mercury nor arsenic was detected.

J

The next advertisement to which we replied ran as follows:—

DR. HESELDINE'S FEMALE PILLS

Never fail in removing the most obstinate cases of irregularity or obstruction, from whatever cause, as a rule in a few hours. Boxes 7½*d.*, 1*s.* 1½*d.*, and 2*s.* 9*d.* Extra strong 4*s.* 6*d.* Post free. Obtainable only from 118, FALCON ROAD, CLAPHAM JUNCTION, LONDON.

Our letter represented the sender as in domestic service and asked for a box of pills at 7½*d.* packed so as to be safe from observation. We give below the analysis of the contents of the pills which we received in reply. The box, it may be mentioned, bore the Revenue stamp, as did also the boxes of "Dr." Davis and Mr. Dodd. This stamp is believed by many ignorant purchasers to be a sort of Government certificate of favourable official recognition or guarantee of the medicine that it accompanies, while, needless to say, it in no way whatever guarantees or recognises anything. For instance, in the case of "Dr." Heseldine's pills the Inland Revenue officials, representing the Chancellor of the Exchequer, presumably do not claim to be aware that their stamp is affixed to pills which "never fail in removing obstruction from whatever cause" and are of such a nature that the vendor encloses the following caution with them:—"These medicines though quite harmless in their operation are most powerful in their effects and must not be resorted to for illegal purposes nor on any account be taken by ladies desirous of becoming mothers." The analysis below will enable our readers to judge whether this is a genuine caution or whether it merely exaggerates the qualities of the pills with a view to inducing pregnant women to purchase them. We note that the vendor says, "Prevention is better than cure; Dr. Heseldine's pills are the greatest preventive in the world," and that the rest of the literature accompanying the box sent to us dealt mainly with the merits of various mechanical means for preventing conception similar to those referred to in other cases.

The analysis of the pills is as follows:—

Analysis of "Dr." HESELDINE'S FEMALE PILLS.

Moisture, 7·71 per cent.
Organic substances, 75·99 per cent.
Mineral matter, 16·30 per cent.

The mineral matter contained both iron and an alkaline carbonate so that it is probable that these pills were made up partly on the basis of a Blaud's pill. The organic extract gave no evidence of any aperient substance being present other than aloes. Mercury and arsenic were carefully tested for but without the slightest positive indication.

The pills had a characteristic smell suggesting valerian.

K

The advertisement in this case was printed in our first article. It was as follows:—

Apiol and Steel Pills for Ladies.—A French Remedy for all Irregularities. Obtainable only from Martin, Chemist, Southampton. Price 4*s.* 6*d.*, post free.

Our letter stated that the writer was a servant, enclosed 4*s.* 6*d.*, and asked for the pills as advertised to be sent packed secure from observation. They duly arrived with printed advertisements of other goods sold by the same chemist, the pills themselves figuring on a piece of paper which also extolled "Dr. Fournier's Soluble Preventive Cones. Introduced and recommended by the late Dr. Fournier, a celebrated Parisian lady specialist." Beneath further details of this invention the medicine we have analysed is described as "Apiol and Steel Pills, the French

Remedy for Irregularities." On a separate slip of paper is recommended "For Obstinate Cases of Female Irregularity" a "Hygienique Mixture, Dr. Fournier's Formula at 11*s*." From these announcements must be inferred the purpose for which these pills were advertised; the extent to which they are calculated to fulfil the promises of their vendor will be appreciated by those who study their analysis below.

Analysis of MARTIN'S APIOL AND STEEL PILLS.

Moisture, 5·00 per cent.
Mineral matter, 34·21 per cent.
Organic substances, 60·79 per cent.

These pills are described as steel and apiol pills. They are pink in colour which is due to the use of a fluorescent aniline dye.

The mineral matter consisted almost exclusively of iron. There was no satisfactory evidence of the presence of, at any rate, any important quantity of apiol. On distillation a trifling quantity of oil was obtained possessing a smell suggestive of apiol. Ether also extracted a small quantity of oil which had a parsley-like odour. Very satisfactory evidence was obtained in favour of the view that these pills contain more aloes than anything else.

The case of the Chrimes brothers has demonstrated the possibility that blackmail may be associated with traffic in these abortifacients and so-called "preventive" remedies. The crime, however, is so serious and entails with universal applause such severe penalties upon the criminal that it possibly has not been common. But another contingency presents itself forcibly for consideration and that is that the advertisements can be made the medium for simple robbery. The circumstances attending our communications with Madame Frain suggest to us that this may have occurred frequently. Madame Frain is an individual who advertises largely, or was wont to do so when these articles were commenced. Here is the specimen of her advertisement which attracted our attention:—

Ladies. — Absolutely Indispensable to LADIES! Particularly those who desire a quick, safe and reliable and non-injurious remedy for all obstructions and irregularities, a medicine which cures (usually in a few hours) cases which have baffled the skill of the best medical men. No lady need despair, as the most obstinate and helpless cases have been immediately relieved by this remedy. Mrs. Wilson, of Honor Oak Park, Forest Hill, says: "Your invaluable remedy took immediate effect; in less than 12 hours I was all right, after 18 weeks of misery and hopelessness." A properly certified guarantee is enclosed with testimonials and medicine. One package at 4/6 is usually sufficient for any case. Ladies send at once fully directed envelope for particulars and proofs. I will forfeit £2,000 if the testimonials are not genuine. Thousands of unsolicited testimonials have been received. Do not be misled by showy advertisements and other so-called remedies which are utterly worthless and *fraudulent* imitations.

NOTICE.—This wonderful remedy guaranteed to have the largest sale in the entire world, being the oldest and only harmless medicine of its kind for ladies, and cures more patients in one month than all other Female Remedies put together in twelve months. This can be proved by our Testimonials.

If you require more particulars I will send you per return of post, in sealed letter, post free, a splendid Book (34 pages) and Guide (cloth covers, 60 pages and 40 illustrations of Ladies' Appliances), and full particulars of the wonderful effective remedies as advertised and sold in every town and village in Great Britain. Consultations Free every day 3 to 7. Established over 100 years.

Do not delay, but write at once privately to Madame FRAIN, Medical Institute, Hackney-road, London, N.E. (opposite Shoreditch Church).

In replying to this advertisement after receiving preliminary particulars we wrote on Nov. 19th to Hackney-road for a bottle of the "Strongest Mixture" and a box of pills and we enclosed a postal order for 15*s*. We received no reply and no goods. We therefore wrote again on Nov. 29th complaining of their non-receipt to which letter we received the following reply:—

Telegrams—Frain, Hackney-road, London.
Bankers—London & Midland.
Herbal Institute, 1a, Hackney-road (opposite Shoreditch Church),
London, N.E., Dec. 1st, 1898.

MY DEAR MADAME,—I am very sorry your letter has been overlooked. Kindly write stating full particulars what you require and how much money was enclosed in your letter.

And oblige, yours faithfully,
MADAME FRAIN.

To this letter we replied on Dec. 2nd repeating our request for the bottle of "Strongest Mixture" and a box of pills, and pointing out that a postal order had been sent. From that day to this we have heard nothing from Madame Frain. The train of conclusion is obvious. The wording of Madame Frain's advertisements clearly invites communications from unchaste women. The enormous majority of women with amenorrhœa are *enceinte*, and another large class of persons who would be allured to answer Madame Frain are the persons who place themselves in the position of being *enceinte* and who fondly think that by swallowing preventive nostrums the processes of procreation may be fended off. How are these unfortunate women, having sent money to Madame Frain and having received no reply, to compel her to send it back? Some perhaps know that the purpose for which they sent the money was illegal; others without much respect for the law still regard very highly the opinion of their friends or their employers. How can they ask the police to assist them in making Madame Frain disgorge and yet preserve their secrets? The calm proceeding of keeping our postal order (the number of which we warn this predatory matron we have noted) is what might have been expected from the literature disseminated by the Herbal Institution (or Ladies' Medical Institution, to give the shop its alternative title) in the Hackney-road, for everything about Madame Frain's methods reeks of fraud. In her first reply to us she posted us a bundle of testimonials "from ladies selected from all parts" and adds that she has "thousands of others which I will gladly show and will forfeit £2000 if the testimonials are not absolutely genuine." We will excuse Madame Frain from paying us the £2000, not out of any consideration for her but solely out of consideration for the vile origin of her money; nevertheless the testimonials are not genuine. It is true that the envelope in which they were enclosed bears the following inscription:—

Personal & Private.

DEAR MADAME,

To demonstrate beyond doubt the effecacy of our Female Mixture & Pills I am enabled to enclose herewith for your perusal *in Strictest Confidence* a few testimonials (among many thousands which can be seen at any time by you in their post-marked envelopes) of Ladies who have *unsolicited* acknowledged their marvellous unequalled and unfailing effect I know I may rely upon *your honour to immediately post the enclosed back to me after perusal* for which I enclose a directed envelope.

Trusting this will satisfy you as to our *Bona Fides* and referring you to the book of printed testimonials also enclosed

Yours very faithfully,
M. C. FRAIN.

Alas for Madame Frain's *bona fides!* All the original "testimonials" which she relied on our honour to return to her are lithographs. They are reproduced on different coloured paper in different coloured inks and if in some cases different handwritings are obvious in others their similarity is striking; but the documents are merely lithographs of the sort that can be turned out by the thousand.

We shall publish no more analyses of pills and potions. We have now made known the constituents of the most widely advertised nostrums and on the basis of the knowledge thus derived shall be able later to discuss some of the broader issues opened up by our articles.

THE ROYAL COMMISSION ON THE METROPOLITAN WATER-SUPPLY.

THE forty-second meeting of this Commission was held on Monday, Dec. 19th, when Lord LLANDAFF (chairman) presided, and the other Commissioners present were Sir George Barclay Bruce, Mr. Cripps, Q.C., Mr. de Bock Porter, Major-General Scott, and Mr. Robert Lewis. The entire sitting was devoted to the examination of Mr. Charles Hawksley, C.E.

Mr. HAWKSLEY, in reply to the CHAIRMAN, said that he had had considerable experience in the designing and construction of waterworks both for companies and for local authorities. He was in partnership for upwards of twenty-five years with his father, the late Mr. Thomas Hawksley, C.E., who first introduced into this country the system of constant supply. His father and Sir Frederick Bramwell in 1892 considered and approved the proposals of Messrs. Hunter and Fraser for the storage of Thames water at Staines and gave evidence in support of them before the Balfour Commission. Subsequently Sir Frederick Bramwell and the witness were consulted in reference to, and they approved of, the scheme embodied in the Staines Reservoirs Bill which received the sanction of Parliament in 1896 and he and others had been requested by the London water companies to give evidence before this Commission. In preparing the various tables which he now presented he had taken the

growth of population at the rates suggested by the Balfour Commission of 18·2 per cent. per decennium for Greater London and 19·7 per cent. per decennium for the outlying parts of Water London. The result was that in the case of Greater London the population was estimated to increase from 5,656,909 in 1891 to 13,043,712 in 1941 and in the case of the outlying parts from 76,041 in 1891 to 187,504 in 1941. Witness explained that there are no official figures to show how far the estimate of the growth made by the Balfour Commission has been borne out by experience, but he did not believe it would be found far amiss. He felt certain that the figures given by the Commission are perfectly safe for the purposes of calculation. The average daily supply from all sources for the year 1897 amounted to 202,102,544 gallons, made up as follows:—From the River Thames 112,178,641 gallons, from the River Lee 55,292,863 gallons, from springs and wells 34,488,016 gallons, and from ponds at Hampstead and Highgate 143,024 gallons. The witness presented a table showing the quantity of water to be provided in the future by the eight London companies and by other companies and local authorities deriving their supplies from the basins of the rivers Thames and Lee to meet the requirements of the estimated population of Greater London and the outlying parts of Water London during the period up to 1941. In this calculation Mr. Hawksley took 35 gallons as the daily quantity of water required per head of the population and the results he worked out were:—

	Estimated population.	Gallons required per day.		Estimated population.	Gallons required per day.
1891 ...	5,733,000 ...	200,655,000	1921 ...	9,468,000 ...	331,380,000
1901 ...	6,777,000 ...	237,195,000	1931 ...	11,192,000 ...	391,720,000
1911 ...	8,010,000 ...	280,350,000	1941 ...	13,231,000 ...	463,085,000

Witness explained that the object of introducing 1891 was to get a starting-point which was familiar, although as a matter of fact 35 gallons per head of the population were not supplied in that year.

Major-General SCOTT reminded Mr. Hawksley that the reference of the present Royal Commission deals only with the eight metropolitan water companies and their responsibilities, while the calculation he now put forward was much wider in its scope.

Mr. HAWKSLEY, admitting this, said that the Balfour Commission intimated that inasmuch as the water for the other districts must be obtained from the same sources as those which supplied the metropolitan companies they ought to be considered in determining the effect on the Thames or the Lee. Continuing his evidence Mr. Hawksley said that to meet this quantity required the Balfour Commission considered that they might reckon on 52½ million gallons per day from the River Lee, 40 million gallons from wells in the Lee Valley, and 27½ million gallons from wells in the Kent Company's district—a total of 120 million gallons per day. Accepting these figures they left 343 million gallons to be obtained from the Thames or from wells in the Thames Valley to meet the estimated daily requirement of 1941 and witness was decidedly of opinion that the Thames could yield this without reaching the limit of its capabilities. He had given the matter very careful attention and he was of opinion that it could yield a great deal more than this quantity. In the Thames Valley there were a great many convenient sites for reservoirs.

Mr. PORTER: Then you think it is idle to look elsewhere than the Thames?

Mr. HAWKSLEY: Yes, within the period to which we need look forward at the present moment. If you speak of 500 years hence, that, of course, is another matter, for when we have used up all available water in the Thames we must go elsewhere.

Mr. PORTER: Would you say that for the next 100 years at all events, it is not necessary to go to Wales?

Mr. HAWKSLEY: I do not think it is.

The CHAIRMAN: You think it is an unnecessary precaution at the present time?

Mr. HAWKSLEY: I think so.

The CHAIRMAN: Would you wait till another party brought in a Bill to appropriate the water?

Mr. HAWKSLEY: I would wait till there was talk of appropriation.

In reply to Major-General SCOTT witness said that the Staines reservoir scheme contemplated a total extent of 6000 acres.

Major-General SCOTT: That is to say nearly 10 square miles.

The CHAIRMAN: Ten square miles of water in the neighbourhood of Staines!

Mr. PEMBER, Q.C.: That is nothing to a flood.

Mr. HAWKSLEY: No. And it would not do the damage that a flood does; it would not go into the people's houses.

In further examination Mr. HAWKSLEY said that in his opinion much more than the 343 million gallons per day might with propriety be taken from the Thames. He had not fixed a limit but any limit he might fix would have for its basis the flow over Teddington Weir and the financial considerations governing storage. His opinion was that the flow over Teddington Weir might very properly be reduced to 100 million gallons per day or even to a smaller quantity in exceptional years. He was not prepared to give a description of what the river below would be like if only 100 million gallons passed over the Teddington Weir. Witness presented a series of figures making a comparison of the cost of the Thames and the Welsh schemes. They showed he said, that up to the year 1941, the accumulated expenditure in respect of interest on capital would in the case of the Welsh scheme, even when reckoned on Sir Alexander Binnie's own estimate, have exceeded the corresponding accumulated expenditure in respect of interest on capital and cost of pumping in the case of the Thames scheme by the sum of £5,464,179 and that thenceforward the expenditure on the Welsh scheme would exceed the corresponding expenditure on the Thames scheme by the sum of £28,373 per annum to be borne in perpetuity. The next point taken up by Mr. Hawksley was the comparative merits of company and corporation management. His experience, he said, extended to both systems and he had no hesitation in saying that water management was generally better in the hands of a company than in those of a corporation. A company was not subject to being influenced by political considerations which was generally the case with a public authority, and it looked at the matter from a more solid and commercial basis than was done by a public authority. In addition public authorities were swayed not only by politicians but also by faddists.

The CHAIRMAN: Is it not your experience that corporations and public bodies which have acquired the water-supply have ultimately reduced the charge to the consumer.

Mr. HAWKSLEY: Not usually until a considerable period has elapsed and then there have been instances where there has been a reduction. In the meantime, however, there has frequently been a large loss incurred. Witness proceeded to cite the experience of such places as Heywood, Rochdale, and Middlesbrough, where there has been a transference of the water undertaking from a company to the public authority and where after the tranference there have been applications to Parliament for power to increase the rates charged to consumers. He also cited several cases where grants in aid have been found necessary.

In reply to Mr. PORTER witness said he did not doubt that many of these water undertakings were capable of being ultimately worked at a profit by the corporations. He was not prepared to say that he knew any corporation which would like to go back to company management. Quite apart from results corporations were not likely to give up the power and patronage involved and the prestige. As to whether the consumers if polled would declare in favour of a return to company management it was difficult to say because the consumers seldom understood these matters.

Mr. PORTER: But surely the consumers know whether they are paying more or less for their water?

Mr. HAWKSLEY: The consumer does not find that out.

The CHAIRMAN: I suppose you recommend all your public authority clients to turn over their concerns to private companies?

Mr. HAWKSLEY: That would not suit the corporations. It would be of no use giving such advice because they could not sell their undertakings at a price which would make it remunerative to a company to buy and they would not like the loss of prestige.

The CHAIRMAN: Does the management of a water undertaking bring prestige? I thought it only brought abuse.

Mr. HAWKSLEY: Yes, I think there is some prestige.

The CHAIRMAN: You dropped a hint about patronage.

Mr. HAWKSLEY: Yes, a corporation employs a large staff of men in connexion with its waterworks.

Mr. PORTER: Can you give a case apart from London where you think things are better in the hands of a company than they would be if transferred to the municipality?

Mr. HAWKSLEY: Yes; I can give Norwich, Yarmouth,

Lowestoft, Bristol, Sunderland, and others, and of course I think London would be much worse off.

The usual time for adjournment having arrived the CHAIRMAN announced that the Commissioners proposed meeting on the following day and further examining Mr. Hawksley.

Mr. HAWKSLEY explained to his lordship that he had an important arbitration case to attend on that day.

The CHAIRMAN, addressing counsel for the companies, asked whether they had any other witnesses to tender.

Mr. POPE, Q.C., said that Mr. Eaton was prepared to give evidence.

The CHAIRMAN said that so far as he could gather Mr. Eaton proposed to do nothing more than corroborate Mr. Hawksley and he would remind the companies that the main question after all was the question of financial expediency. Long ago certain statements had been made as to the capital of the companies and he should have expected to find them eager to meet these statements. If the companies did not have their evidence ready the Commissioners would have to proceed with something else.

Mr. POPE assured his lordship that his clients had no desire to keep back evidence.

After some further conversation it was decided that the Commission should not meet again until Monday, Jan. 9th.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN thirty-three of the largest English towns 6169 births and 3830 deaths were registered during the week ending Dec. 24th. The annual rate of mortality in these towns, which had declined in the three preceding weeks from 19·1 to 16·6 per 1000, rose again last week to 17·8. In London the rate was 17·0 per 1000, while it averaged 18·3 in the thirty-two large provincial towns. The lowest death-rates in these towns were 10·6 in Cardiff, 12·4 in Wolverhampton, 12·5 in Leicester, and 13·8 in Croydon; the highest rates were 22·1 in Liverpool, 23·0 in Manchester, 25·4 in Salford, and 30·2 in Swansea. The 3830 deaths in these towns included 424 which were referred to the principal zymotic diseases, against 399 and 372 in the two preceding weeks; of these 115 resulted from diphtheria, 104 from measles, 70 from "fever" (principally enteric), 53 from whooping-cough, 50 from diarrhœa, and 32 from scarlet fever. The lowest death-rates from these diseases were recorded in Croydon, Leicester, Derby, and Burnley, and the highest rates in Leeds, Nottingham, Bolton, and Swansea. The greatest mortality from measles occurred in Manchester, Salford, Bolton, and Nottingham; from whooping-cough in Halifax and Boston; and from "fever" in Salford, Bolton, Brighton, and Norwich. The mortality from scarlet fever showed no marked excess in any of the large towns. The 115 deaths from diphtheria included 46 in London, 17 in Leeds, 10 in Swansea, 7 in Sheffield, 6 in West Ham, 6 in Liverpool, and 4 in Brighton. No fatal case of small-pox was registered last week in any of the thirty-three large towns, and no small-pox patients were under treatment in any of the Metropolitan Asylums Hospitals. The number of scarlet fever patients in these hospitals and in the London Fever Hospital on Saturday last, Dec. 24th, was 2901, against 3142, 3099, and 3043 at the end of the three preceding weeks; 221 new cases were admitted during the week, against 264, 276, and 260 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 295 and 283 in the two preceding weeks, were last week 284, and were 195 below the corrected average. The causes of 52, or 1·4 per cent., of the deaths in the thirty-three towns were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Cardiff, Leeds, Hull, and in nine other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Liverpool, Huddersfield, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 21·0 and 19·4 per 1000 in the two preceding weeks, further declined to 18·2 during the week ending Dec. 24th, but slightly exceeded the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 11·6 in Leith and 15·2 in Paisley to 21·1 in Aberdeen and 22·1 in Perth. The 549 deaths in these towns included 14 which were referred to scarlet fever, 14 to whooping-cough, 13 to diarrhœa, 12 to measles, 11 to "fever," and 4 to diphtheria. In all, 68 deaths resulted from these principal zymotic diseases, against 71 and 64 in the two preceding weeks. These 68 deaths were equal to an annual rate of 2·3 per 1000, which was 0·3 above the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of scarlet fever, which had increased from 3 to 12 in the four preceding weeks, further rose to 14 last week, of which 9 occurred in Glasgow and 2 in Dundee. The 14 deaths from whooping-cough were within 2 of the number in the preceding week, and included 9 in Glasgow, 2 in Paisley, and 2 in Dundee. The fatal cases of measles, which had declined from 19 to 8 in the three preceding weeks, rose again to 12 last week, of which 6 occurred in Glasgow, 3 in Edinburgh, and 3 in Aberdeen. The 11 deaths referred to different forms of "fever" exceeded by one the number in the preceding week, and included 8 in Glasgow and 2 in Edinburgh. The deaths from diseases of the respiratory organs in these towns, which had been 163 and 132 in the two preceding weeks, further declined to 119 last week, and were 30 below the number in the corresponding period of last year. The causes of 30, or more than 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had declined in the three preceding weeks from 31·6 to 25·2 per 1000, was again 25·2 during the week ending Dec. 24th. During the past four weeks the rate of mortality in the city has averaged 27·0 per 1000, the rate during the same period being 17·1 in London and 21·3 in Edinburgh. The 169 deaths registered in Dublin during the week under notice corresponded with the number in the preceding week, and included 10 which were referred to the principal zymotic diseases, against 8 and 15 in the two preceding weeks; of these, 4 resulted from whooping-cough, 3 from diarrhœa, 2 from scarlet fever, 1 from "fever," and not one either from small-pox, measles, or diphtheria. These 10 deaths were equal to an annual rate of 1·5 per 1000, the zymotic death-rate during the same period being 1·7 in London and 1·6 in Edinburgh. The fatal cases of whooping-cough, which had been 3 and 5 in the two preceding weeks, declined again to 4 last week. Two deaths resulted from scarlet fever, against 1 in the preceding week; while the mortality from "fever" was below that recorded in any week since August last. The 169 deaths in Dublin last week included 37 of infants under one year of age and 38 of persons aged upwards of sixty years; the deaths of infants exceeded those recorded in the preceding week; while those of elderly persons showed a decline. Nine inquest cases and 7 deaths from violence were registered; and 63, or more than a third, of the deaths occurred in public institutions. The causes of 13, or nearly 8 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointment is notified:—Staff Surgeon C. J. Mansfield to the *Pearl*.

ROYAL ARMY MEDICAL CORPS.

Colonel E. Townsend takes over the duties of the Principal Medical Officer of Her Majesty's Forces in India pending the arrival of Surgeon-General Taylor, C.B. Major R. Stuart is directed to proceed from Poona to Bombay for temporary duty in the Colaba Station Hospital. Lieutenant G. S. Nickerson has been appointed for service with the Egyptian Army. Captain H. J. M. Buist shortly proceeds to Woolwich. Surgeon-General W. A. Catherwood is appointed Principal Medical Officer, Bengal Command.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant John K. Tomory, 1st Sutherland Highland Rifle Volunteers, to be Surgeon-Lieutenant.

VOLUNTEER CORPS.

Artillery: 1st Cheshire and Carnarvonshire: Surgeon-Lieutenant John Oldershaw resigns his commission and is appointed Captain. The Highland: George Wilson to be Surgeon-Lieutenant. *Rifle:* 1st Volunteer Battalion the Suffolk Regiment: Surgeon-Major M. E. Ling resigns his commission; also is permitted to retain his rank and to continue to wear the uniform of the battalion on his retirement. 3rd (The Blythswood) Volunteer Battalion the Highland Light Infantry: John William Logie to be Surgeon-Lieutenant.

DEATHS IN THE SERVICES.

A correspondent writes:—The news was received in Plymouth last week of the death of Surgeon-Lieutenant-Colonel James Powell, M.R.C.S. Eng., L.R.C.P. Edin., R.A.M.C., which occurred on Dec. 17th on board the transport ship *Simla* while on his way to India. He was born in 1851, received his medical education at King's College Hospital, London, and took the qualifications of M.R.C.S. Eng. and L.R.C.P. Edin. in 1873 and 1874 respectively. In the latter year he entered the army and became Surgeon-Major in 1886 and Surgeon-Lieutenant-Colonel in 1894. Surgeon-Lieutenant-Colonel Powell was with the Natal Field Force in 1881 in the Transvaal Campaign and and in 1884–85 with the Soudan Expedition on the Nile when he was in charge of the Kaibur Field Hospital, and in 1885–86 with the Frontier Field Force when he took part in the action of Kosheh. In the military operations of 1885–86 he obtained mention in despatches and for the preceding campaign he received the medal with clasp and the Khedive's bronze star.

Deputy Inspector-General Duncan MacRae, retired list, Indian Medical Service, at Kames Castle, Bute, on Dec. 14th, in his eighty-third year. He joined the Honourable East India Company's service in January, 1839, served through the Afghan campaign of 1842, and was present at the capture of the fort of Khythul in 1843. He also served with the Bugti campaign in Scinde in 1846 and the Punjab campaign in 1848–49, including the siege of Mooltan and the battle of Goojerat. He was in the Indian Mutiny of 1857–58, and was present at Umballa, Meerut, and the capture of Delhi (three medals and three clasps).

Fleet Surgeon W. E. O'Brien, retired, at Dublin recently, aged seventy-six years. He joined the service in 1846, became Staff Surgeon in 1856, Fleet Surgeon in 1871, and retired in 1875.

REVISED REGULATIONS FOR ADMISSION TO THE ROYAL ARMY MEDICAL CORPS.

Revised regulations for admission to the above corps have been issued by the War Office. Candidates for appointment to the corps must be not under twenty-one and not over twenty-eight years of age at the date of commencement of the competitive examination. They will be required to produce an extract from the register of their birth or a declaration made before a magistrate by one of their parents, a recommendation from a person in society as to their habits, &c., and a certificate of moral character from a clergyman. They will also be required to produce two diplomas or licences recognised by the General Medical Council, one to practise medicine and the other surgery, and they must be registered under the Medical Act. They must also produce certificates of having discharged the duties of medical clinical clerk for six months and one of having attended a course of at least three months in an ophthalmic hospital. There will be two competitive examinations each year. Captains of the Royal Army Medical Corps serving in India will in future be allowed to undergo short courses of operative surgery at the medical colleges at Calcutta, Madras, and Bombay under arrangements just made by the Government of India.

THE INDIAN PLAGUE COMMISSION.

Touching the constitution of the Commission appointed from Great Britain for the investigation of plague in India it seems to have very naturally given rise to some surprise that no officer of the Indian Medical Service was nominated to serve upon that Commission. There are several medical officers of the Indian Medical Service of scientific reputation who have been trained in bacteriological work and who have made it a subject of special study, to say nothing of their knowledge of the country and the personal experience which they have acquired of the disease during the progress of the epidemic in India. It may, we think, be assumed, however, that the Government either thought it best to have a perfectly independent inquiry or that the omission was simply the result of inadvertence.

THE PLAGUE IN INDIA.

The number of victims of the plague shows a marked decline in the Bombay districts and in Bangalore but no change is reported in the Madras Presidency and the Central Provinces. The epidemic is raging in the Mysore and Hyderabad districts. Captain J. Davidson and Lieutenant J. S. Stevenson, both of the Indian Medical Service, Bengal, have been posted for plague duty in Mysore. The Chief Commissioner of Coorg has been empowered to deal with plague under the Epidemic Diseases Act.

Colonel A. Stephen, Indian Medical Service, returns to England on retirement, having tendered the resignation of his appointment as Inspector-General of Civil Hospitals, Punjab.

THE EPIDEMIC OF TYPHOID FEVER AT BELFAST.

SECOND YEAR.

(FROM OUR SPECIAL COMMISSIONER.)

(Concluded from p. 1789.)

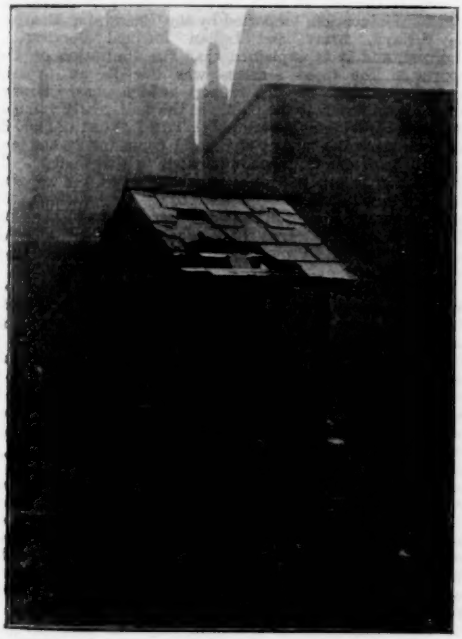
ON another occasion I made my way over the Lagan to visit some of the newest streets and what are supposed to be among the best built workmen's cottages. On my way I stopped at a cheap eating-house situated in the main thoroughfare. Behind the house there was a large back-yard unpaved and with mounds of dirt and manure divided by pools of stagnant water. At one end there was a shanty with a fire burning on the floor, for there was no chimney. By the side of the fire a pig had made himself quite at home and there were plenty of poultry strutting around. Lengthways along the yard there were several stables at present only occupied by pigs, and these stables drained on to the unpaved soil. The yard was therefore full of mire and slush. A sanitary inspector had been there to see that the drain which runs near the back of the houses and at the farthest point from the stables should be repaired but he had said nothing about the paving of the yard and establishing a connexion between the drain and the stables. The rain-water from the stable roof as well as the liquid manure could not reach the drain but soaked into the soil, for the drain was some 25 ft. away from the waterspout. Eleven cartloads of manure were removed from this yard some four months ago, but it was the incoming new tenant who had to pay to have this done and now fresh accumulations are rising on all sides.

A little further on I came upon a small butcher's shop. The wall of the closet in the little back-yard had partially broken away. Only fragments of the seat remained and they were covered with soil. In the open privy behind the seat there was a pool of water with offal floating in it. The half of the yard nearest to the house was roofed over and formed a sort of shanty in which a store of meat was hung at a distance of not more than 16 ft. from this disgusting uncovered privy. There was also a big dog and its kennel here and though the yard was supposed to drain into a gully the flow was towards the privy. The flag stones used to pave the yard were loose and there was water underneath. The boards of the floor of the shop had great holes which gave a view of the low inaccessible basement beneath. Sawdust, blood, and fragments from the meat dropped down through these holes into this sort of cellar and could not be cleared away. As fermentation and decomposition proceeded the effluvium rose up through the holes and mixed with the meat exposed for sale. The inspection of this butcher's shop provided one of the strongest arguments in favour of vegetarianism which I have ever encountered.

In the —— road I entered a small cookshop where the owners were busy making tea-cakes in the back close to some pig-swill and in the midst of much dirt. The sanitary inspector had been there recently and had caused the pigsty to be removed to the furthest end

of the yard so that it might be at a distance of at least 15 ft. from the dwelling. But apparently he had not examined the closet, for I found that the pan was loose and that a part of the flush came out against the back wall. The water thus spilt does not, however, run out from under the seat and as it gets away readily it is to be presumed that it drains into the soil-pipe at some point a little below the closet-seat, where there is probably a faulty joint or a hole in the pipe. Pending such time as the sanitary inspector shall think fit to look into these matters the tea-cakes will be kneaded and baked within a few feet of this leaking closet. Of course other edibles and milk are also kept here for the customers' tea.

Adjoining the —— road there is a small street paved with round stones which are irregular and create little pools of water. The houses are so damp that bright green moss grows on the walls to a height of some 18 in. On the right-hand side some houses have been demolished and behind those which remain there is a large unpaved yard with a wooden structure in one corner which serves as a stable. Near to this stable stands the closet which I have photographed. The door, it will be seen, has disappeared long ago. The walls on both sides of the seat are in a great



measure destroyed and there is a big hole through the third wall at the back of the seat. The roof is likewise shattered. There is another seat immediately behind this perforated back wall which is scarcely less exposed to the public view than the one which is shown in the photograph. Yet this is all the accommodation afforded for the persons who live in the three houses giving on to this yard. Belfast is a town where the inhabitants profess to uphold a high standard of public morals and decency. What sense of decency and modesty is such a closet as this likely to engender? In one of the three houses which have no better provision made for them than this closet a child in my presence showed her appreciation of such accommodation by relieving herself in the middle of the back room. Her elder brother mildly suggested that she should have waited till "the gentleman was gone." Such are the manners which naturally result when no proper sanitary contrivances are available. In the yard where this dilapidated closet stands there is no dustbin, therefore the household refuse is deposited anywhere and forms mounds which stand out like islands amid the surrounding mud and slush. The wet from the stables slowly winds its way between these protuberancies till it reaches some deeper hollow and there it stagnates. Some of these pools were so foul that the water had acquired a bright green colour; and it is amidst such dirt and round this ruined closet that the boys and girls of the neighbourhood come to play and pass what should be the sunny days of their childhood.

On leaving this scene of dirt and desolation I passed by a muddy back passage with a heap of manure in it. In —— street I found that some scavengers had been extracting black mud out of the gullies, but instead of carting it away immediately and to a safe distance from the town they had spread it out over the street pavement. Here it was left to be trodden into the earth by the traffic of the street. As this black mud was spread out in thin layers and to a distance of several feet instead of being thrown up in a heap, it was evident that there was no intention of carting it away. The earth, already foul, will thus be rendered even more unwholesome. I now reached —— street. A portion of this thoroughfare consists of some of the newest and presumably the best workmen's cottages in Belfast, yet there is a back passage so full of mud and stagnant water that a pair of scavengers' waterproof boots would be required for its exploration. Evidently there are no precautions taken here and this passage has been shamefully neglected. At one end it faces an open, unbuilt, and unpaved space made up of dirty earth and pools of stagnant water. The chopped straw from the interior of some mattresses which had been destroyed was blowing about. Why were these mattresses destroyed? who had slept upon them? and was the straw they contained clean enough to be allowed to blow about and to be kicked about in the open spaces where the street-children went to play? These questions remain unanswered. I now entered one of the new cottages and at first sight it seemed a great improvement on the older houses which I had previously visited. In the back room which served as a sort of pantry there was a sink brightly enamelled which drained through the wall over the yard gully so that the disconnexion was complete. The closet in the back-yard had a good flush and at first it appeared as if no fault could be found with this cottage, but on closer examination I discovered that there had been here the same lack of supervision noticed in other parts of the town. The pan of the closet was quite loose. It had not been cemented to the trap and therefore there was nothing to prevent leakage. The earth under the seat was damp from the washings from the pan and the subsoil on which the house stood thus became contaminated when the closet pan was flushed out. There never was a better instance of the proverbial spoiling of a good ship for the want of a pennyworth of tar.

But all the houses in —— street have not got water-closets. In another house I ascertained that there had been two cases of typhoid fever — a mother and her son. At a distance of only 6 ft. from the back window there was a privy full up to the very rim of the seat. The mother had so far recovered that she was up and about but she explained to me that she was still too weak to allow the privy to be emptied. She dreaded the awful stench which would result from carrying the filth through the house, for there was no back passage for this side of the street. Also, this woman felt that she would not have the strength to clear up the mess which the scavengers would make. As her son and herself had been provided with pails during their illness she hoped that the contents of the privy were not specially dangerous. This is a good illustration of the evil effects of the absence of back passages. The privy of another house on the same side of the street was in a similar condition and here also there had been a case of typhoid fever. The inhabitants were making a sort of tea-cake close to this overflowing and uncovered privy.

—— street runs parallel with —— street and here I entered another new and nicely arranged cottage. The back-yard was well paved though not quite level. There was a clean dustbin, a good water-closet, and the pan this time was firmly fixed; but the gully in the yard over which the sink water emptied had a big hole in its side so that only a portion of the water went to the drain and the rest escaped into the subsoil through this hole. In this case, again, all that is wanted is better supervision and a handful of cement to block up a little hole. In the next house the inhabitants complained of bad odours from the back passage and in the adjoining house there was a case of typhoid fever. The patient, a youth, was recovering. Here I found that the gully in the yard did not fit properly and that the pan of the closet

was loose. No pail, I was assured, had been brought to this house; therefore the dejections from the patient had been thrown into the closet where the loose pan would allow some part of the wet to escape on to the ground under the seat. In the next house to this one there had also been fever, no less than 5 cases. A pail had been provided and the loose tile paving in the back-yard had been repaired, but the grate to drain this yard was in a bad position and a part of the water did not reach it. There was a very nasty close smell in this house.

At one end of the street there is a narrow opening forming a short passage leading to the long back passage which runs between the two streets. A board is suspended here announcing that this is the way to the —— street National School. It is true that it only leads to the back entrance and that there is a better way to the front entrance, but it is the shortest road for many of the children. One poor girl availed herself of this passage while I was looking on. It was pitiful to see her efforts to keep her feet dry and to avoid the filth. Both her arms were stretched out wide to balance herself by pressing on the walls on either side. Then she tried to step on pebbles and small stones. There was fæcal matter on all sides and a filthy stained palliasse, thrown out here no one knows by whom, though it might infect the narrow passage where so many children have to pass. Where are the scavengers? How is it that these back passages remain in such a condition? The passage running behind —— and —— street I found even in a worse condition. The doors which give access to the dust-bins were swinging or open. Straw, garbage, and vegetable refuse of all sorts were lying about, and in the midst of this filth a drunken man had fallen and was now fast asleep. Yet while these foul things fester behind the houses, in front the cottages have a smart appearance. Some are hardly more than four years old and the street is broad. Judged superficially this would be thought a healthy district. In the last house I visited there was upstairs a young woman suffering from typhoid fever. No pail had been sent for this patient and her dejections were thrown into the water-closet. On removing the seat I found that here again the pan was quite loose. The lead pipe to deliver the water for the flush was affixed to the pan by a bit of rag fastened round with some string. The pan rested loosely on the trap, nor did the trap seem to have been jointed to the soil-pipe. On the exit side of the trap there was some slight trace of clay where there should have been cement. On the other hand, the dustbin or ashpit was carefully covered over and it was evident that only a little care was needed to make this a sanitary dwelling. The sanitary inspector, I was informed, had called—he had even entered the closet and pulled the string to see if the flush worked well, but, satisfied by this perfunctory form of inspection, he had left the place without ever discovering that a bit of rag and a bit of string had been substituted for plumber's work and that the drains were not secure at the joints.

Not far from here I had noticed some digging done to lay the foundations of new dwellings. The earth looked so black and forbidding that I made my way to the end to see how ground was produced by the dumping process. Here there is a bridge over some railway lines and between the line and the last houses there is a rubbish shoot. At the foot of the rubbish there was a large pool of green water. On the opposite side of the railway the corporation carts shoot their rubbish and are thus piling up what is denominated in the neighbourhood as "Microbe Hill." It is said that the contents of privies are no longer emptied here. Perhaps this is so, but the bubbling water at the foot of these rubbish shoots smells strongly of sulphuretted hydrogen. In some places it is green, at others more like ink and it is always foul. At one "tip" now used by the Northern Railway Company I saw much straw and what seemed to have been manure. Also the heap was hot and smoking, and one wonders if houses are ever built here what sort of health the inhabitants will enjoy.

After all these investigations I must confess to being overwhelmed with a deep sense of despair. When even such easy trifles as the cementing of a closet-pan on its syphon trap are so generally neglected, though the presence of typhoid fever in the houses should have caused all such defects to be promptly detected and remedied, it is impossible to hope with much confidence that the great and sweeping measures of sanitary reform urgently needed will be efficaciously applied. Is it likely that an administration which, at any rate in the past, has displayed such crass incapacity and has been guilty of such palpable life-destroying neglect will ever be able to produce a Hercules capable of cleaning out these Augean stables? Does this not rather suggest that a higher and outside authority should interfere so that the law shall at last be enforced and that the work of efficient sanitary supervision shall be no longer neglected?

Correspondence.

"Audi alteram partem."

"THE GENERAL MEDICAL COUNCIL AND PRELIMINARY EXAMINATIONS."

To the Editors of THE LANCET.

SIRS,—In the letter of the Registrar of the General Medical Council which appears in this week's number of THE LANCET the incorrectness of the figures given in the report of the Education Committee with regard to cases of "deficiency in general education," reported by the Examining Boards of the "Navy, Army, and Indian Medical Services," is admitted, and it is explained that the limitation of these reports to the three services was due to an oversight in the drafting of the report which has, however, already been issued to the public in the half-yearly volume of the Council's minutes, is printed in THE LANCET of Dec. 3rd, has been made the subject of general comment in the press, and has been officially communicated to this College. The oversight is, to say the least, unfortunate, as the report, in the form in which it was presented to the Council, was calculated to convey a most erroneous impression as to the extent of the alleged "deficiency in general education" attaching to persons who had registered as medical students on the certificates of this College.

It is now stated that the figures given in the report comprise the whole of the cases reported by the various Examining Boards, "including those for the Navy, Army, and Indian Medical Services," and that out of these 14 are those of candidates who had passed their preliminary examination at the College of Preceptors. With regard to the accuracy or otherwise of the figures given in the table in the registrar's letter, it may be sufficient to say that the total number of cases reported is, after the most careful examination of the published minutes, found to be, as set out in the accompanying table, not 58 but 84, or, exclusive of cases not traced, 65. The number of the cases attributed to the College of Preceptors is apparently arrived at by including some cases in which under the old "piecemeal" regulation of the General Medical Council candidates were registered on certificates obtained from more than one examining body. As it would be impossible to say whether the subject of "English," in which the spelling test is usually included, was passed at one or the other examination, it seems only fair that all such cases should be eliminated and the number for which the College of Preceptors may be held to be responsible would then be reduced to 11—,11 cases in seven years out of a total of 2133 candidates who during that period have come on the Medical Students' Register by means of College of Preceptors' certificates. The proportion of cases traced to the College is therefore represented by the fraction $\frac{1}{193}$, or about $\frac{1}{2}$ per cent. The total number of medical students registered during the past seven years amounts to 12,526. The average of traced cases of deficiency would therefore be 1 in 193, or $\frac{1}{2}$ per cent., the same proportion as that attributable to the College of Preceptors. But if only the number of those who have qualified on one or other of the *junior* or *preliminary* examinations in the United Kingdom be considered the proportion would be 65 out of 8467, or 1 in 130, or about $\frac{3}{4}$ per cent.

The proportion of reported cases of "deficiency in general education" amongst candidates who have qualified during the same period on certificates of the Irish Intermediate Education Board is represented by the fraction $\frac{2}{113}$, or nearly 2 per cent., which is a somewhat different ratio from $\frac{1}{193}$. Nevertheless this examination is retained on the list, as are also the public entrance and other pre-graduate examinations of Trinity College, Dublin, with a proportion taken together of $\frac{3}{113}$, or nearly 3 per cent. The mere statement of these

facts reduces the whole matter to its true proportions and exhibits in the clearest light the triviality of the charge that has been brought against the College of Preceptors' examination and made so prominent a feature in the report drafted, as was stated by the chairman of the committee, by Dr. MacAlister. I am, Sirs, yours faithfully,

H. W. EVE,
Dean of the College of Preceptors.

Bloomsbury-square, W.C., Dec. 27th, 1898.

Table showing the Numbers of Candidates reported as having been Deficient in General Education with the Preliminary Examinations in which they Qualified for Registration as Medical Students during the Years 1892–1898.

Preliminary examinations.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	Total.
University of London	—	2	—	—	—	—	—	2
University of Dublin	—	2	1	—	—	—	1	4
University of Aberdeen	—	—	1	—	—	—	1	2
Royal University of Ireland... ...	1	—	3	—	—	—	—	4
Queen's University of Ireland ...	—	—	2	—	—	—	—	2
College of Preceptors	1	6	2	—	—	1	1	11
Intermediate Education Board of Ireland	—	2	1	—	—	—	—	3
Society of Apothecaries, London ...	—	2	—	—	—	—	1	3
Royal College of Surgeons in Ireland	2	5	12	—	—	—	—	19
Royal College of Physicians and Surgeons in Ireland	—	—	1	—	—	—	1	2
College of Physicians and Surgeons of Manitoba...	—	—	1	—	—	—	—	1
University of Edinburgh and College of Physicians and Surgeons, Edinburgh	—	1	—	—	—	—	—	1
University of Edinburgh and Society of Apothecaries	—	—	1	—	—	—	—	1
University of Glasgow and College of Physicians and Surgeons, Glasgow	—	—	—	—	1	—	—	1
Society of Apothecaries and College of Preceptors...	2	1	1	—	—	—	—	4
Society of Apothecaries (*bis*) and College of Preceptors	1	2	—	—	—	—	—	3
Educational Institute of Scotland and College of Preceptors	—	1	—	—	—	—	—	1
Royal University of Ireland and Queen's University of Ireland...	—	1	—	—	—	—	—	1
Not traced	—	8	1	—	1	9	—	19
Totals	7	33	27	—	2	10	5	84

"THE SEAMEN'S HOSPITAL SOCIETY AND ITS VISITING STAFF."

To the Editors of THE LANCET.

SIRS,—The letter in your issue of last week, signed John Curnow, M.D., F.R.C.P., John Anderson, M.D., F.R.C.P., G. R. Turner, F.R.C.S., might lead readers to infer that in various publications I had deliberately assumed a title to which I had no claim, that knowing that this description was untrue I had designated myself "Physician to the Seamen's Hospital, Greenwich." In self-defence I am constrained to ask you to allow me space to make the following statement.

In 1892 I was appointed a physician to the Seamen's Hospital Society. My duties, I was informed, were sole charge of the medical cases in the society's Branch Hospital, Albert Docks; to visit convalescents at the *Dreadnought* Hospital, Greenwich, when transferred there from the Branch Hospital; to take part in the meetings of the society's honorary visiting staff. In discharge of these duties I visited the Seamen's Hospital, Albert Docks, twice a week, and the Seamen's Hospital, Greenwich (*Dreadnought*), once a week, and attended most, if not all, of the meetings of the medical staff to which I was summoned. At the time of my election I was not informed that my office carried with it any particular title; but as I performed all the duties of a hospital physician at both of the Seamen's Hospitals I naturally inferred that I was a physician to both of these hospitals and that I had a perfect right to designate myself as such. Accordingly, and in conformity with medical custom, I called myself, or was called in various publications, sometimes "Physician to the Seamen's Hospital, Greenwich," sometimes "Physician to the Seamen's Hospital, Greenwich, and Seamen's Hospital, Albert Docks."

Some three years ago I was pained and surprised to be informed by the secretary of the Seamen's Hospital Society that my colleagues (as I regarded them) at the *Dreadnought* (Seamen's Hospital, Greenwich) had collectively and officially represented to him that I had assumed a title to which I had no right and that he had been asked officially to request that I should discontinue the practice. If I am not mistaken (unfortunately I have destroyed the correspondence) I was requested to write to the medical press and publicly intimate that I was not a physician to the Seamen's Hospital, Greenwich, and that I had no right so to describe myself. I protested. After some correspondence, in the course of which I intimated that I considered that my colleagues might have spoken to me privately if they thought I was in error or considered themselves aggrieved, I expressed regret if I had unwittingly arrogated to myself a title to which I had no claim. In consequence of the want of consideration shown me by my colleagues at the *Dreadnought* I have ceased to visit there, feeling that my seniors did not care to be associated with me, and myself not caring to be associated with those who, I considered, had treated me with scant courtesy, not to say fairness or friendliness.

At the time of the correspondence referred to I did consider, as I still consider, that I had a perfect right—in fact as much right as either Dr. Curnow or Dr. Anderson had—to designate myself "Physician to the Seamen's Hospital, Greenwich." I regret now that, shrinking from a petty squabble and for the sake of peace, I gave way on what at the time seemed to me to be a most trivial matter.

I am, Sirs, yours faithfully,

PATRICK MANSON.

Queen Anne-street, Cavendish-square, Dec. 28th, 1898.

"CLEANSING THE LESSER PERITONEAL CAVITY."

To the Editors of THE LANCET.

SIRS,—Will you kindly allow me to reply to Mr. Furner's letter in your issue of Dec. 24th? My "note" was headed "Perforated Gastric Ulcer" and dealt for the most part with two points other than that of cleansing the lesser peritoneal cavity. The facts are very simple. Some time ago, as my "note" says, I read a case of death from the giving way of a second ulcer opposite to one on the anterior wall which had perforated and which I had closed. *At that time* I pointed out that it would be well to adopt a practice of examining the posterior wall to prevent this disaster. *Mr. Furner, when reading his paper, spoke of my case and of my suggestion that the posterior wall should be examined.* I did not, when advocating this, make any allusion to cleansing the cavity or the prevention thereby of the formation of an abscess. What I claim to have advised (a simple but not unimportant custom) no one who heard me read my case will deny that I did advise. Again anyone fairly reading my "note" in your paper will see that as between Mr. Furner and myself I give him full credit for drawing attention to the need of cleansing the lesser peritoneal cavity and the good which would arise from doing it as a matter of routine.

I had a perfect right to draw the attention of surgeons to two points I thought my experience had shown me were important and not generally recognised. Had I known Mr. Furner was about to publish his paper I would certainly have left out any allusion to his point of cleansing the cavity. I must add, however, that I am not conscious of having treated him unfairly by accident even, certainly not by design. I am, Sirs, yours faithfully,

Brighton, Dec. 26th, 1898. T. JENNER VERRALL.

"FIRES IN LUNATIC ASYLUMS."

To the Editors of THE LANCET.

SIRS,—Your note on the recent fire at this house scarcely does justice to the staff.

The patient whose life was lost was not merely aroused

but was brought downstairs into a place of perfect safety, being the very first person in the house to be rescued. He met his death by going back to the scene of the fire to get his belongings. It was not on the arrival of the firemen that the unfortunate man was first missed and searched for. He was missed a quarter of an hour before the firemen arrived and every room had been searched and every bed had been felt before the firemen arrived at the house. The closet in which the deceased was eventually found had been searched after he was missed and before the firemen arrived and he was not then in it. The firemen are deserving of the highest praise for the manner in which they performed their duties; but, in giving them the credit which is justly their due it is only fair to add that the house staff was equally efficient in circumstances that to them were much more trying.

I am, Sirs, yours faithfully,

Catford, S.E., Dec. 24th, 1898. CHARLES MERCIER.

A SUGGESTED EXPLANATION OF CERTAIN PECULIAR CARDIAC PHYSICAL SIGNS IN PHTHISIS.

To the Editors of THE LANCET.

SIRS,—Attention has recently been called [1] to the presence of cardiac impulse and sounds on the right side of the chest although on post-mortem examination the heart was found in its normal position. In the cases referred to there existed cavity formation at the upper part of the right lung with consolidation of the lower lobes. At first sight it seems difficult to account for the peculiar phenomena observed, but a few remarks will, I hope, make the reason quite clear. It is a well-known fact, demonstrated by many authorities, that during respiration we often find cardio-pneumatic sounds produced which simulate closely organic cardiac murmurs, and indeed are often mistaken for these. They may be heard either in cardiac systole or in cardiac diastole and at times during both movements of the heart. Where there exists a cavity in the lung the sounds produced in that cavity may give rise to similar cardio-pneumatic murmurs. In the cases already referred to the cavities present were situated close to the cardiac organ and, moreover, had, so to speak, a bridge of consolidated lung connecting the heart with the cavity. In this way the cardio-pneumatic murmurs were conducted downwards from the cavity to the intercostal space on the right side over which they were audible. In a similar manner the impact of the heart was rendered visible and palpable on the right side of the chest by this combination of cavity and consolidation. It would appear that the presence of consolidated lung cannot of itself cause this conveyance of cardiac impulse else it would be observed in cases of lobar pneumonia; there must also be cavity formation present above the consolidated area. It is the presence of a cavity that is one of the *sine quâ non* of cardio-pneumatic murmurs in phthisis and it is likewise the essential in the conveyance of cardiac movement to the right side of the chest. During the stage of cavity formation in phthisis I have frequently remarked the presence of these so-called cardio-pneumatic sounds not only in the region of the cavity but at an entirely opposite part of the chest and have always observed that in such cases there was a well-defined bridge of consolidated lung substance existing between the cavity and the area other than that of the cavity itself over which these murmurs were audible. There can be no doubt whatever that the cardiac impulse is conveyed in a similar manner, the transmission being due to the peculiar combination of cavity and consolidation in direct proximity to the heart. Cases of this kind are by no means rare and a clear understanding of the conditions present is most essential to the practitioner. I am quite convinced from personal observations that such misleading phenomena as I have been considering never occur unless we have cavity formation co-existent with consolidation in the same lung. If this fact is borne in mind I think no further difficulty will be experienced in accounting for what must always prove to be interesting, as they are striking, phenomena.

I am, Sirs, yours faithfully,

JAMES BURNET, M.A. Edin., M.B. Edin.

Cumin-place, Edinburgh, Dec. 12th, 1898.

ERRATUM.—In a letter signed "H. E. G." which appeared in our issue of Dec. 24th upon "Diphtheria Antitoxin in Private Practice," p. 1733, the price quoted for 2000 units of serum was wrongly printed as 17*s.* 6*d.* It should have been 17*s.* 3*d.*

[1] THE LANCET, Nov. 19th, 1898, p. 1323; and Dec. 10th, 1898, p. 1548.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Bacterial Treatment of Manchester Sewage.

A PRELIMINARY report, signed by the three experts appointed some months ago to consider and report on the best methods of treating the Manchester sewage, has been addressed to the Rivers Committee of the corporation. It is a very satisfactory one to those who have been looking with hope to the bacterial treatment for solving the difficult problem of sewage disposal. The report is too long for transcription, but Messrs. Baldwin Latham, Percy F. Frankland, and W. H. Perkin, jun., say, "without hesitation that from the results obtained with the double contact beds constructed according to our instructions at Davyhulme by your city surveyor and the experiments carried on by us which have been directed to the treatment and purification of settled and crude sewage without the use of any chemicals we are of opinion that the bacteriological system, notwithstanding the particular nature of the Manchester sewage, will purify that sewage and will yield an effluent which will comply with all the requirements of the Mersey and Irwell Joint Committee and which when discharged into the Ship Canal will, in our judgment, be the means of greatly improving the waters of the latter." One of the strongest *a priori* points which the advocates of the culvert to the sea or other modes of dealing with the sewage of Manchester insisted on was that the chemical refuse which was discharged into the sewers would put a stop to bacterial action. In an appendix to the report Mr. Gilbert J. Fowler, the chemist, says: "In no case has the presence of manufacturing refuse shown a marked tendency to render the purification less effective." Any mineral acids seem to be neutralised by the alkaline carbonates, soaps, &c., for "in no case has the sewage been found to be acid with mineral acid." The Local Government Board is to hold an inquiry on Jan. 12th, 1899, into the working of the system, when the experts are expected to give evidence. It is proposed to limit the inquiry to the main principles determining the treatment of the sewage at Davyhulme, reserving details as to plans and estimates for a later inquiry.

Bromoform Poisoning.

An inquest was held on Dec. 22nd at Lancaster concerning the death of a little girl, five years old, the daughter of the infirmary porter. It seems that 36 minims of bromoform were put in a mixture made up with mucilage and water and the child died after the last dose had been taken. The theory was that the whole of the bromoform had been left at the bottom of the bottle and taken in the last dose from its not having been well shaken as directed. The report is rather meagre and as this is said to be the first recorded case of bromoform poisoning it would be well if a fuller account were given.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

University of Edinburgh.

THE following are the numbers of students who attended the several courses of lectures in the University of Edinburgh during the year 1897-98: botany, 174; zoology, 205; chemistry, 241; anatomy, 228; physiology, 436; materia medica, 217; pathology, 180; medical jurisprudence, 203; medicine, 252; surgery, 241; midwifery, 113; mental diseases, 166; and opthalmology, 117.

The Inebriates Act, 1898.

This important statute will come into operation on Jan. 1st, 1899. Meantime a committee to frame regulations for the proposed inebriate reformatories in Scotland and generally to advise the Secretary for Scotland as to the methods of working the Act is sitting. At first there was no medical man on that committee. The Royal Colleges of Physicians and Surgeons of Edinburgh and the Glasgow Faculty of Physicians and Surgeons pointed out this omission to the Lord Advocate, who at once requested the presidents of those

corporations to name a medical man who "would command the confidence of the profession." They nominated Dr. Clouston, who accordingly has been added to the committee.

Glasgow University.

The George A. Clark Scholarship of £170 for four years has been awarded to Mr. Hugh R. Buchanan, M.A.; the senior Arnott prize for an examination in physiological physics to Mr. James M'Pherson, M.A.; and the junior Arnott prize for an examination in general physics to Mr. Alex. Macintyre. At a recent meeting of one of the students' clubs Professor Bradley, in replying to the toast of "Alma Mater," alluded to the work of the University Commission and expressed the opinion that the results would in all respects be beneficial, even though in some respects the necessary alterations produced temporary difficulties. The diminution in the number of students, largely consequent upon a more stringent preliminary examination, was in one sense unfortunate, but compensation might be expected in the shape of more efficient secondary education throughout the country and the cessation of junior classes in the University would leave more energy free for the prosecution of the higher ranges of scholarship. The new arrangements by which the emoluments of the professors are independent of the number of students attending their classes Professor Bradley regarded with unqualified approval. He advocated a scheme by which students on coming up to the University could receive directions in reference to the curriculum they should pursue. Hitherto the public professional criticisms on the University Commissioners have been rather of an adverse order; it is refreshing to hear a more optimistic note from one of the younger members of the senatus. To the general regret Professor Coats is again laid aside by illness; his senior assistant, Dr. L. R. Sutherland, has also been somewhat seriously ill. The charge of the pathological department has been committed to the care of Dr. A. R. Ferguson.

The Royal Infirmary, Aberdeen.

The number of in-patients admitted to the Royal Infirmary during the year is given as 2363, and 208 were left under treatment on Dec. 19th. There were also 2116 casualty cases of a minor kind and 3382 out-patients. It is stated that there will be a deficit in the funds for the year of upwards of £1200.

Dec. 27th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Christmas at the Dublin Hospitals.

THE Royal Hospital Infirmary was visited by Field-Marshal Lord Roberts, V.C., accompanied by the Hon. Aileen Roberts, Lieutenant the Hon. F. H. S. Roberts, A.D.C., the Adjutant, Captain Fielding, and the Staff Surgeon, Dr. Carte. His lordship presented the old warriors with gifts of wine, fruit, and tobacco. At the Children's Hospital, Temple-street, Her Excellency the Countess Cadogan will preside at the Christmas tree *fête* which will take place on Dec. 28th.

Filled-up Dumping Ground.

A very important case was tried at the Belfast Recorder's Court on Dec. 22nd in which a man brought an action against another man to recover £50 for alleged damages caused by a nuisance which resulted in a noxious smell owing to filth having accumulated on the defendant's lands and for wrongfully allowing polluted water to flow into the lands of the plaintiff. It would appear that the plaintiff lives in a cottage near the River Lagan and that about one year ago the defendant caused to be deposited near his house a material with a most offensive smell which a sanitary engineer who was examined said was "filling-up" matter composed of ashpit refuse and road scrapings. He was told it was done by the corporation. Dr. Whitaker, medical officer of health of Belfast, said the main damage was that the view of the River Lagan from plaintiff's house was interfered with. The plaintiff's case was that the matter used as "filling up" substance was hurtful to his family's health and a medical man swore that he had treated plaintiff's daughter for typhoid fever in the month of July. The jury found for the plaintiff and awarded the full amount claimed—£50. I trust the result of this case will put an end for ever to this abominable practice, so prevalent in Belfast, of "dumping" down stuff (often from ashpits, &c.) in various parts of the city. The case will in the future in Belfast be regarded as a test one.

Dec. 27th.

Obituary.

ALFREDO ANTUNES KANTHACK, M.A. CANTAB., M.D., F.R.C.P. LOND., F.R.C.S. ENG.,

PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF CAMBRIDGE.

ON Dec. 21st there passed away the foremost of the younger generation of pathologists in the person of the Professor of Pathology in the University of Cambridge. Alfredo Antunes Kanthack was born in Brazil in 1863, the second son of Emilio Kanthack of Para, at one time Her Majesty's Consul in that town. He was educated in Germany, chiefly at Hamburg and Luneburg, during his early years, but afterwards he studied at University College, Liverpool, St. Bartholomew's Hospital, St. John's College, Cambridge, and Berlin. He became a Member of the Royal College of Surgeons of England in 1887 and a Fellow in 1888, a Member of the Royal College of Physicians of London in 1892 and a Fellow in 1897.

After taking the Fellowship of the Royal College of Surgeons and completing his M.B. and B.S. at the University of London he went almost at once to Berlin. Here he began his first real work in pathology. A pupil of Virchow, of Koch, and of Krause he speedily attracted the attention of his teachers as an ardent worker, both clinically and in the laboratory. A paper on the Histology of the Larynx, published in Virchow's Archives, established his reputation as an original observer and a controversialist of skill. Using to the full his enormous capacity for work he laid here the foundation of his all-round knowledge of pathology which was so striking a feature of his later years. He made many friendships and only a few days before his last illness he was the companion of Professor Virchow in many of the journeys which the latter made during his recent stay in this country. In the year 1890 he went as a Commissioner appointed by the National Leprosy Fund to India with the late Dr. Beaven Rake and Dr. Buckmaster to investigate the question of leprosy in that country. Some of the conclusions embodied in the report did not find favour with certain of the members of a special committee appointed to consider it, but it received the approval of the scientific members of the executive committee who accepted the conclusions while bearing testimony to the great care and ability with which the inquiry had been conducted.

On his return from India in 1891 he was elected John Lucas Walker Student at Cambridge and he published several papers as the result of his year's work. Many of the papers dealt with the question of immunity and, whilst denying the claims of Metchnikoff, at that time almost universally allowed, that the phenomena of phagocytosis completely explained the processes of immunity, he guarded himself from accepting the extreme claims of the supporters of the humoral theorists. The most important of these papers, published conjointly with Mr. Hardy, appears in the Proceedings of the Royal Society, vol. lii. At this time was published his paper on Madura Disease in which he demonstrated the parasitic nature of the affection and its close resemblance, if not identity, with actinomycosis. After a year passed in Liverpool he went to St. Bartholomew's Hospital in 1893, and while there, notwithstanding the claims made on his time by the work of his post—that of lecturer on pathology—he was able to contribute many valuable papers, mostly in connexion with his daily work and on a great variety of subjects to the medical journals and the publications of the various societies. On leaving St. Bartholomew's in 1897 to succeed Professor Roy at Cambridge it seemed possible that he would gain the leisure necessary for a larger measure of work of his own.

During the autumn of this year, 1898, came the report on the inquiry into the tsetse fly disease which he was conducting with the aid of Dr. Durham and Mr. Blandford. The failure of all attempts to find a cure for this South African scourge is disappointing, but the report contains much that is of value concerning points in doubt or of error with regard to

infectivity of various animals. His last work, published with Dr. St. B. Sladen a few days before his death, was concerned with the infectivity of milk as supplied to the consumer in regard to tuberculosis. His acquaintance with the literature of his subject in nearly all its branches was very remarkable and this with his wide practical experience made him an authority alike in general pathology, pathological histology, and bacteriology. In addition a fine critical sense and the extraordinary influence which he had over his pupils made him almost an ideal teacher, especially of beginners in research. An assured position he already held and his work seemed to promise great things in the future, but his loss to pathology in England is to be especially deplored for had he been spared he would by his example and guidance, by his energy and enthusiasm in the post which he held, have had a very large influence on its progress. His travels abroad had brought him in contact with many of the best workers on the continent and in India and he had many friends in America. His foreign correspondence was very large—much of it created by his own writings. Abroad as well as in England many will grieve at the loss of a friend and counsellor removed from our midst at so early an age.

His published works include "Leprosy in India," which was the report of the Leprosy Commission published in 1892 conjointly with his fellow Commissioners, "A Manual of Practical Morbid Anatomy," 1894, and "A Handbook of Practical Bacteriology," 1895. Besides these he wrote many most valuable communications to the scientific journals, especially to the *Journal of Pathology* and the Proceedings of the Royal Society. His Jacksonian Prize Essay was won in 1895 and bore for motto a drawing of some bacilli with the following words:

> "What are these
> So withered and so wild in their attire,
> That look not like the inhabitants o' the earth
> And yet are on't?"

It is scarcely necessary to add that the essay dealt with the subject of Tetanus.

Professor Kanthack was widely read—a good linguist and a man of thoroughly cultured mind, with a singular charm of manner. Dowered as he was with so many gifts his place will indeed be hard to fill. The funeral—which took place on Dec 24th at Cambridge, the first part of the service being sung in the chapel of King's College, of which society he was recently elected a fellow—was attended by a large number of friends and relations, and representatives of the University and the various scientific and learned bodies of which the deceased was a member.

WILLIAM MUNK, M.D. LEYDEN, F.R.C.P. LOND.,

HARVEIAN LIBRARIAN TO THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

By the death of Dr. William Munk who passed away at his residence, Finsbury-square, on Dec. 26th the medical profession loses one whom it can ill afford to spare. In addition to being a sound and capable physician Dr. Munk was a scholar, an antiquarian, and a writer of fluent and stylish prose. As librarian to the Royal College of Physicians of London he exhibited all those qualities which are so necessary for the post but which it is almost impossible to acquire unless the possessor of them is so gifted by nature.

Dr. Munk was born in 1816. He received his medical education at University College, London, and at the University of Leyden where he graduated M.D. in 1837. He became a member of the Royal College of Physicians of London in 1844 and a Fellow of the same body in 1854, being elected Harveian Librarian in 1857. He was senior censor of the College in 1882 and vice-president in 1888–1889. His first medical appointment was that of demonstrator of morbid anatomy to the medical school of St. Thomas's Hospital. For many years he was physician to the Royal Infirmary for Asthma, Consumption, and Diseases of the Chest and at the time of his death was consulting physician to the Royal Hospital for Incurables. He held the post of consulting physician to the Small-pox and Vaccination Hospital for some forty years, and was one of the first authorities upon small-pox. Of his literary labours the most important was without doubt the extremely carefully edited volume entitled "The Roll of the Royal College of Physicians," of which the first edition appeared in 1861 and the second, revised and enlarged, in 1878. The first edition was in two volumes and the second in three. The third edition comprised the period between 1518 and 1825, at which latter date the Royal College of Physicians of London was removed from Warwick-lane to its present site in Pall-mall. The work consists of a series of short biographies of the practitioners included in the "Roll" and its tenor may be judged from an extract from the preface to the third edition. After apologising for the necessarily monotonous character of the work Dr. Munk proceeds: "The more successful a physician is, the more he is engaged in the best duties of his office, the less is there to meet observation or to court publicity, and the less material, therefore, for biography. 'The physician's part,' says Johnson, 'lies hid in domestic privacy, and silent duties and silent excellencies are soon forgotten.'" Other works from his pen were "Euthanasia, or Medical Treatment in Aid of an Easy Natural Death," which appeared in 1887, and "The Life of Sir Henry Halford, Bart., M.D.," which appeared in 1895. In 1884 he edited "The Gold-headed Cane." This last little book was originally written by Dr. Macmichael, the registrar of the College from 1824 to 1829, and was cast in the form of an autobiography related by "The Gold-headed Cane" preserved in the library of the College, which was carried successively by Radcliffe, Mead, Askew Pitcairn, and Baillie. Dr. Munk, in editing the original edition, added particulars dealing with Halford, Paris, and Mayo, bringing the autobiography down to 1862. "Euthanasia" was an earnest and learned plea for the recognition of the duty which physicians owe to their patients not to end life but to render its passing in hopeless cases more easy. The book was the foundation of a leading article in THE LANCET of Dec. 10th, 1887. In the early part of this year the Fellows of the Royal College of Physicians, as a mark of their gratitude for the forty years' labour of Dr. Munk as librarian, subscribed for his portrait to be painted. The commission was entrusted to the Hon. John Collier and the picture which was completed in July now hangs in the dining room of the College. The primary cause of the death of Dr. Munk was glycosuria.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen having passed the necessary examinations and having conformed to the by-laws and regulations have been admitted Fellows of the College and have received their diplomas:—

Claud Alley Worth, L.R.C.P. Lond., St. Bartholomew's Hospital; diploma of Membership dated May 11th, 1893.
Arthur Godfrey Ince, L.R.C.P. Lond., Charing-cross Hospital; May 10th, 1894.
George Herbert Sowry, M.B., B.S. Lond., L.R.C.P. Lond., St. Bartholomew's Hospital; May 9th, 1895.
Nathaniel Bishop Harmar, M.B. Cantab., L.R.C.P. Lond., Cambridge University and Middlesex Hospital; July 29th, 1895.
Hugh Thomas Symes Bell, L.R.C.P. Lond., Guy's Hospital; Feb. 13th, 1896.
Arthur William Ormond, L.R.C.P. Lond., Guy's Hospital; August 4th, 1896.
Alfred Walter Sikes, B.Sc., L.R.C.P. Lond., St. Thomas's Hospital; August 4th, 1896.
William Ilbert Hancock, L.R.C.P. Lond., Guy's Hospital; Nov. 12th, 1896.
William Stuart-Low, L.R.C.P. Edin., L.F.P.S. Glasg., Edinburgh, St. Thomas's and St. Bartholomew's Hospitals; May 13th, 1897.
James Atkinson Bonnin, M.B., Ch.B. Adel., L.R.C.P. Lond., Adelaide University and London Hospital; July 29th, 1897.

Four other gentlemen passed the examination, but have not yet attained the legal age, and will receive their diplomas at future dates. Twenty gentlemen were referred for six months and one gentleman for twelve months.

UNIVERSITY OF CAMBRIDGE.—The following candidates were successful at the examinations for medical and surgical degrees Michaelmas term:—

THIRD EXAMINATION.

Part I., Surgery and Midwifery.—R. Ainsworth, B.A., Pembroke; H. F. Bassano, B.A., Trinity; R. B. Cornaby, B.A., non-collegiate; E. Cox, B.A., Caius; S. W. Curl, B.A., Downing; W. S. Darby, B.A., Trinity; N. Devereux, M.A., H. Selwyn; A. T. Fraser, B.A., Caius; J. H. P. Fraser, Jesus; A. C. Fry, Pembroke; H. A. Gaitskell, M.A., Clare; P. A. Godson, B.A., St. John's; J. Cutch, M.A., Christ's; G. E. Harthan, B.A., Jesus; H. M. Harwood, B.A., Trinity; C. L. Hawkins, B.A., Emmanuel; N. Heard, B.A., Down; J. E. Helm, B.A., Magdalene; M. Horne, B.A., Trinity; R. J. Horton-Smith, M.A., and O. Inchley, B.A., St. John's; G. F. Lobb, B.A., and N. J. McCaskie, B.A., Caius; A. E. Martin, B.A., Down; J. C. Matthews, B.A., St. John's; H. R. Mayo, B.A., Caius; T. A. Mayo, B.A., Clare; W. T. Mullings, B.A., Christ's; J. P. L. Mummery, B.A., Caius; P. J. Nicholls, B.A.

St. John's; G. E. Orme, B.A., Caius; F. A. Rose, B.A., St. John's; R. N. Salaman, B.A., Trinity Hall; F. Shufflebotham, B.A., Trinity; J. F. Skrimshire, St. John's; E. Talbot, B.A., Trinity; R. S. Trevor, M.A., Clare; A. N. Walker, B.A., Queens', and W. B. Winton, B.A., Clare.

Part II., Medicine, &c.—J. L. Allen, B.A., King's; C. H. Barnes, B.A., Christ's; P. F. Barton, B.A., and J. A. H. Brincker, B.A., St. John's; A. E. Carsberg, B.A., Caius; A. W. Daniel, B.A., Emmanuel; S. E. Denyer, M.A., Queens'; W. Eardley, M.A., St. John's; E. E. Glynn, B.A., Clare; W. D. Harmer, B.A., King's; G. E. Harthan, B.A., Jesus; H. M. Hart-Smith, B.A., and J. H. F. Jerrard, B.A., Caius; M. B. Johnson, B.A., Trinity Hall; A. C. Jordan, B.A., Sidney-Sussex; G. S. Keeling, B.A., Caius; T. W. Letchworth, B.A., Emmanuel; F. J. Lidderdale, Trinity; A. F. MacCallan, B.A., Christ's; P. L. Moore, B.A., and B. A. Percival, B.A., St. John's; S. P. Pollard, B.A., Caius; C. Powell, B.A., Emmanuel; C. Reissmann, B.A., St. John's; E. P. Sewell, B.A., Pembroke; C. C. Simson, M.A., Trinity; P. T. Sutcliffe, B.A., Emmanuel; E. C. Taylor, B.A., St. John's; H. C. Thorp, B.A., Emmanuel; I. Ll. Tuckett, M.A., Trinity; A. N. Walker, B.A., Queens'; A. M. Ware, B.A., Pembroke; W. K. Wills, M.A., St. John's; R. J. Willson, B.A., Emmanuel; and A. G. Wilson, B.A., Caius.

The Special Board for Medicine have elected Dr. Allbutt, Regius Professor of Medicine, to be their representative on the General Board of Studies until Dec. 31st, 1902. The General Board of Studies have re-appointed Dr. Hill, Master of Downing College, University Lecturer in Advanced Human Anatomy till Michaelmas, 1903, and the appointment has been confirmed by the Special Board for Medicine.

THE QUEEN has conferred the Hon. Associateship of the Order of St. John of Jerusalem on Dr. G. T. Cattell.

SOUTH DEVON AND EAST CORNWALL HOSPITAL.—The committee of the South Devon and East Cornwall Hospital has acknowledged the receipt of £560 from the Hospital Saturday Fund.

RAILWAY ACCIDENT TO A MEDICAL MAN.—Mr. A. Jeffreys of Abercanaid who was injured so seriously at Abercynon Station has had both arms amputated in the Cardiff Infirmary and is progressing favourably.

FOOTBALL CASUALTY.—A verdict of "Accidental death" was returned at an inquest held in Aberdare upon a football player, aged thirty years, who was injured in a football match played between Aberdare and Porth. Deceased sustained a compound fracture of the left leg and tetanus followed.

COCAINE POISONING.—An inquest has been held at Trefusis, Cornwall, upon the body of a man who was found dead in bed on Dec. 19th. Evidence showed that the deceased was in the habit of taking cocaine. Dr. Knuthsen stated that death was due to an overdose of cocaine and a verdict to that effect was returned.

THE VACCINATION ACT.—At the meeting of the Chipping Sodbury Board of Guardians held on Dec. 21st, under the presidency of Sir G. Codrington, Bart., a resolution was passed with only two dissentients to petition the Houses of Parliament to repeal the Vaccination Act of 1898 without delay. The Duke of Beaufort spoke strongly in favour of the resolution, giving some of his military experiences which plainly showed the efficiency of vaccination, and added that unless something was done to re-establish compulsory vaccination they would have a plague of small pox all over the country.—At a meeting of the Torrington Board of Guardians held on Dec. 17th a resolution was passed condemning the new Vaccination Act.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

BAIN, J. W. D., M.R.C.S., has been appointed a Public Vaccinator for South Australia.

BENINGTON, R. C., M.D., B.S. Durh., L.R.C.P. Lond., M.R.C.S., has been appointed a Health Officer for Claremont, Western Australia.

BROWN, WILLIAM, M.D., C.M. Glasg., has been appointed Public Vaccinator for the Fishponds District by the Bristol Board of Guardians.

BURD, CYRIL P., M.R.C.S., L.R.C.P., has been appointed Assistant House Surgeon for the Salop Infirmary, Shrewsbury.

CARLEW, T. W., M.D. Canada, has been appointed a Clinical Assistant for the Chelsea Hospital for Women, Fulham-road, London, S.W.

COLE, J. W. E., L.R.C.P. Lond., M.R.C.S., has been appointed an Assistant Medical Officer for the Infirmary of the City of London Union.

DAVIES, RICHARD, M.D., Ch.M. Edin., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer of the Cheltenham Union Workhouse, vice S. T. Pruen, resigned.

DICKINSON, J., M.B. Lond., has been appointed a Health Officer for Bridgetown, Western Australia.

DOUGLAS, C. E., M.D. Edin., has been re-appointed Medical Officer by the Cupar Town Council.

FLOOD, PHILIP, L.R.C.S., L.R.C.P. Irel., has been appointed Public Vaccinator for the St. Philip and Jacob Registration District by the Bristol Board of Guardians.

GARD, HENRY, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Northern District by the Devonport Board of Guardians.

GENT, W. C., L.R.C.P. & S. Edin., has been appointed Public Vaccinator for the Knowle Registration District by the Bristol Board of Guardians.

GIBSON, THOMAS, M.B., Ch.M. Edin., has been appointed a Public Vaccinator for South Australia.

HALFORD, A. C. F., M.B., Ch.B. Melb., has been appointed a Resident Surgeon for the Claremont Hospital, Queensland.

HARKNESS, E., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed a Public Vaccinator for Yea, Victoria, Australia, vice J. F. Matthews.

HOGG, J. B., L.R.C.P., L.R.C.S. Edin., has been appointed an Inspector of Hospitals for the Insane in Queensland and Medical Superintendent for the Goodna Hospital for Insane, Queensland, vice R. B. Scholes.

HUTCHINSON, M. M. L., L.R.C.P., L.R.C.S. Irel., has been appointed a Medical Officer for the Buckhurst Hill Sanitary District of the Epping Union.

JONES, R., L.K.Q.C.P. Irel., L.R.C.S., has been appointed a Public Vaccinator for Eaglehawk, Victoria, Australia, vice J. C. McKie.

KELLAND, JAMES, M.B. Edin., L.R.C.P., L.R.C.S. Edin., has been re-appointed Medical Officer of Health for the Salisbury Rural District.

LETHBRIDGE, R. W., M.B., Ch.M. Edin., has been appointed a Senior Medical Officer for Hospitals for the Insane, Victoria, Australia, vice E. E. Rosenblum.

LUCKHAM, L. S., M.R.C.S., has been re-appointed Medical Officer for the No. 4 Sanitary District of the Salisbury Union.

MACDONALD, M., M.B., Ch.B. Glasg., has been appointed Officer of Health for the Burgh of Greenock.

MACGREGOR, G. R., M.D. Aberd., has been appointed Medical Officer of Health for the Bingley Urban District, vice J. W. Craig.

MACQUARIE, C. N., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Officer of Healtlr for Bright Shire, Victoria, Australia, vice C. W. Simons.

MASON, J. J., L.R.C.P., L.R.C.S. Edin., has been appointed a Medical Officer for the Bollington Sanitary District of the Macclesfield Union.

MELLAND, C. H., M.B. Lond., M.R.C.S., has been appointed Resident Medical Officer for the Manchester Royal Infirmary.

MISKIN, L. J., M.B. Lond., L.R.C.P., M.R.C.S., has been appointed a Resident Medical Officer for the Perth Public Hospital, Western Australia.

NEVILL, W. NAPPER, B.A., M.D., B.Ch. Dubl., has been appointed Public Vaccinator for the Bedminster Registration District by the Bristol Board of Guardians.

NICOLL, J. R., M.B., Ch.M. Aberd., has been appointed Resident Medical Superintendent for the Toowoomba Hospital for the Insane, Queensland, vice J. B. Hogg.

PAGE, G. SHEPLEY, L.R.C.P., L.R.C.S. Edin., has been appointed Public Vaccinator for the Bristol Ward by the Guardians of the City and County of Bristol.

ROBERTS, E. D. D., M.B., L.R.C.P. Lond., M.R.C.S., has been appointed a Medical Officer for the Workhouse and the First Sanitary District of the Dursley Union.

ROBERTS, J. L., M.B., C.M. Edin., D.P.H. Lond., has been re-appointed Medical Officer of Health by the Prestatyn Urban District Council.

SCHOLEFIELD, G. E., M.D. Edin., D.P.H. Vict., has been appointed Medical Officer of Health by the West Lancashire Rural District Council.

SCOTT, J. A. N., M.D. Glasg., L.R.C.P. Lond., M.R.C.S., has been appointed a Public Vaccinator for Hamilton, Victoria, Australia, vice L. Robinson.

SHEPPARD, E. J., L.R.C.P., L.R.C.S. Ed., has been appointed Public Vaccinator for the Clifton Registration District by the Bristol Board of Guardians.

STAPLE, JAMES DIBBLE, M.R.C.S., L.S.A. Lond., has been appointed Public Vaccinator for the Ashley Registration District by the Guardians of the City and County of Bristol.

STEELL, J., M.B., Ch.M. Edin., L.R.C.P., L.R.C.S. Edin., has been appointed a Senior Medical Officer for Hospitals for the Insane, Victoria, Australia, vice W. A. Barker.

WARD, JOHN, M.D. St. And., M.R.C.S., has been appointed a Public Vaccinator for the District of Lumsden, New Zealand.

YOUNG, JAMES, M.D., C.M. Glasg., has been appointed Public Vaccinator for the St. George's Registration District by the Guardians of the City and County of Bristol.

Vacancies.

For further Information regarding each vacancy reference should be made to the advertisement (see Index).

ANCOATS HOSPITAL, Manchester.—Resident Junior House Surgeon. Salary £50, with board and washing.

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL, Edmund-street, Birmingham.—House Surgeon. Appointment tenable to April 30th, 1899. Salary at the rate of £42 per annum, with board lodging, and washing.

CITY ASYLUM, Birmingham.—Junior Assistant Medical Officer for one year, unmarried. Salary £100 a year, with board, lodging, &c.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—Resident Medical Officer. Salary £100 per annum, with board, &c. Also Second House Physician for six months. Salary at the rate of £30 per annum, with board and residence.

COUNTY ASYLUM, Rainhill, near Liverpool.—Assistant Medical Officer, unmarried. Salary commences at £100 per annum, with prospect of increase to £250, with furnished apartments, board, attendance, and washing.

COUNTY HOSPITAL, Ryde.—House Surgeon. Salary £50 per annum, with board, lodging, and washing.

DERBYSHIRE ROYAL INFIRMARY, Derby.—Assistant House Surgeon for twelve months. Salary £40 per annum, with board, residence, and washing.

FINSBURY DISPENSARY, Brewer-street, Goswell-road, London.—Resident Medical Officer for one year. Salary £100 per annum, with a furnished residence in the institution, attendance, coals, and gas.

GENERAL HOSPITAL, Nottingham.—House Physician for two years. Salary £100, rising £10 a year to £120, with board, lodging, and washing.

GOVAN DISTRICT ASYLUM.—Junior Assistant Medical Officer. Salary £100 a year, with board and residence. Applications to the Medical Superintendent, Hawkhead Asylum, Paisley.

HOSPITAL AND DISPENSARY, Newark-upon-Trent.—House Surgeon, unmarried. Salary £80 per annum, with board and lodging in the hospital.

HOSPITAL FOR DISEASES OF THE THROAT, Golden-square, London.—Resident Medical Officer. Salary £50 per annum, with board, lodging, and washing.

KENSINGTON DISPENSARY.—Resident Medical Officer, unmarried. Salary £125 per annum, with furnished apartments, coals, gas, and attendance. Applications to the Honorary Secretary, 21, Lower Phillimore-place, Kensington, W.

LONDON FEVER HOSPITAL, Islington.—Assistant Physician.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany Memorial), Queen-square, Bloomsbury, London.—Pathologist. An annual honorarium of 50 guineas. Also House Physician. Salary £100 per annum.

NORFOLK AND NORWICH HOSPITAL, Norwich.—Assistant to House Surgeon for six months. Board, lodging, and washing provided. Also Dental Surgeon.

ROYAL LANCASTER INFIRMARY.—Certificated Dispenser. Salary £80 per annum.

ROYAL SOUTHERN HOSPITAL, Liverpool.—Resident Junior House Surgeon. Salary £60 per annum.

ROYAL UNITED HOSPITAL, Bath.—House Surgeon. Salary at the rate of £80 per annum, with board, lodging, and washing.

SOMERSET AND BATH LUNATIC ASYLUM, Cotford, Taunton.—Assistant Medical Officer for five years, single. Salary £120 per annum, rising annually by £10 to £150, with furnished apartments, board, fuel, lighting, and washing.

ST. LUKE'S HOSPITAL, London, E.C.—Clinical Assistant, for six months. Board and residence provided.

ST. THOMAS'S HOSPITAL, London.—Assistant Surgeon.

SUNDERLAND INFIRMARY.—House Physician. Salary £80, rising £10 annually to £100, with board and residence.

TOWNSHIP OF TOXTETH PARK.—Senior Assistant Medical Officer for the Workhouse and Infirmary. Salary £100 per annum, with board, washing, and apartments. No extra fees allowed, and subject to statutory deductions. Applications to the Clerk to the Guardians, 15, High-street, Liverpool.

TYNEMOUTH VICTORIA JUBILEE INFIRMARY, Spring-gardens, North Shields.—Resident House Surgeon. Salary £120 per annum, of which £55 per year will be required for board, lodgings, and washing. Applications to the Secretary, 43, Howard-street, North Shields.

UNIVERSITY OF ST. ANDREWS.—An additional Examiner for three years.

WESTERN OPHTHALMIC HOSPITAL, Marylebone-road, London.—Assistant Surgeon.

Births, Marriages, and Deaths.

BIRTH.

WRIGHT.—On Dec. 24th, the wife of W. Southey Wright, B.A., M.R.C.S., of Park View, Carshalton, of a son.

MARRIAGES.

REID—LAMBERT.—On Dec. 22nd, in London, John Reid, M.D., of Solna, Barnes, to Emily Bardsley Lambert, The Firs, Nottingham.

RUTHERFURD—NAPIER.—At Hyndland Church, Glasgow, on Dec. 22nd, by the Very Reverend Principal Story, D.D., assisted by the Rev. Henry Grey Graham, Henry Rutherfurd, M.B., C.M., to Jean Hay Frew, second daughter of the late Robert Assheton Napier, Esq., shipowner, Glasgow.

DEATHS.

KANTHACK.—On Dec. 21st, at Huntingdon-road, Cambridge, Alfred A. Kanthack, M.A., M.D. Lond., F.R.C.P., F.R.C.S., Professor of Pathology at the University of Cambridge and Fellow of King's College, aged 35 years.

KEBBELL.—At Flaxton, York, Alfred Kebbell, M.R.C.S., aged 51 years.

MAGORIS.—On Dec. 26th, at the Seamen's Hospital, Royal Albert Docks, Nicholas Magoris, M.D., aged 30, late Surgeon to the P. and O. Steam Navigation Co.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Dec. 29th, 1898.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Dec. 23	30·44	S.W.	...	66	45	33	33	35	Foggy
,, 24	30·35	S.W.	...	46	45	34	35	37	Foggy
,, 25	30·37	S.W.	...	65	51	36	43	46	Fine
,, 26	30·14	S.W.	...	67	56	44	46	47	Overcast
,, 27	29·62	S.W.	...	60	57	47	49	55	Stormy
,, 28	29·51	W.	0·69	65	56	45	46	47	Cloudy
,, 29	29·32	S.W.	0·04	52	50	53	46	47	Raining

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M., Ophthalmic 1.15 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), St. Mark's (9.30 A.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), Westminster (2 P.M.), London Throat Hospital (2 P.M.).

TUESDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat Hospital (2 P.M. and 6 P.M.), Royal Ear Hospital (3 P.M.).

WEDNESDAY (4th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat Hospital (2 P.M.), Cancer (2 P.M.).

THURSDAY (5th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex, (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.).

FRIDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat Hospital (2 P.M. and 6 P.M.).

SATURDAY (7th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat Hospital (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (3rd).—PATHOLOGICAL SOCIETY OF LONDON.—8.30 P.M. Mr. A. E. Barker: The Final Sequel to a Case already reported of Removal of Cystic Disease of a supposed Accessory Thyroid Body.—Dr. P. Weber: On an Apparent Thickening of the Subcutaneous Veins.—Dr. C. D. Green: Primary Carcinoma of the Liver.—Mr. D'Arcy Power: A Case of Intussusception.—Mr. R. H. Lucy: A Case of Intussusception.—Mr. Barwell: A Case of Congenital Limb Deficiency and Redundancy (illustrated by lantern slides and stereoscopic skiagrams).

WEDNESDAY (4th).—OBSTETRICAL SOCIETY OF LONDON.—8 P.M. Specimens will be shown by Dr. Lea, Dr. Addinsell, and Dr. J. Phillips. Papers:—Dr. Donald: A Case of Ectopic (Intra-ligamentous) Gestation at the Seventh Month in which the Fœtus was Extracted by Vaginal Incision.—Dr. D. Robinson: Vulval Discharges in Children.

THURSDAY (5th).—HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road).—8.30 P.M. Mr. H. Marsh: On the Subsequent History of Cases in which Adhesions have formed in Joints, the Peritoneal Cavity, and other parts.

FRIDAY (6th).—WEST LONDON MEDICO-CHIRURGICAL SOCIETY (West London Hospital, Hammersmith, W.).—8.30 P.M. Mr. R. Lake: The Treatment of Laryngeal Phthisis.—Mr. J. R. Lunn: Two Cases of Optic Neuritis associated with Mastoid Disease.—Dr. J. Allan: A Series of Twelve Tracheotomies for Laryngeal Diphtheria in Young Children with Nine Recoveries.

LARYNGOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—4.30 P.M. Annual General Meeting. Election of Officers and Annual Reports. Cases will be shown by Dr. S. Spicer, Dr. D. Grant, Mr. C. Symonds, Dr. B. Baron, Mr. M. Agar, Dr. Tilley, Sir Felix Semon, Dr. W. Williams, Mr. W. Wingrave, Mr. A. Thorne, Dr. StClair Thomson, Dr. W. Hill, and others. 8 P.M. Dinner at the Café Royal.

Notes, Short Comments, and Answers to Correspondents.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND, WHEN ACCOMPANIED BY BLOCKS, IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1898 which is completed with the issue of to-day will be given in the next number of THE LANCET.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1898 will be ready shortly. Bound in cloth, gilt lettered, price 18*s.* carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

THE LANCET for the current half-year, July to December, consists of *twenty-seven* numbers, instead of the usual twenty-six. No additional charge for the extra number has been made to those Subscribers who obtain their copies *direct* from the Offices of THE LANCET, 423, Strand, W.C., and whose subscriptions, either quarterly, half-yearly, or yearly, are contemporaneous with the usual quarterly divisions of the year.

Will Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

THE WAG'S CONSCIENTIOUS OBJECTION.

CONSCIENTIOUS objectors have been rather in evidence recently, but a young man who applied this week to Mr. Shell basing his claim for immunity for his child on the alleged fact that he had lost two children from diphtheria following vaccination certainly supplied the most startling example of ignorance. Mr. Shell refused to accept the objection on this plea as a conscientious one, and it is difficult to see how a man can claim that his conscience has proved him to believe in what five minutes of inquiry would have proved false.

DEATH FROM PTOMAINE POISONING.

MR. G. E. HILLEARY held an inquiry on Tuesday night last at the Canning Town Coroner's Court into the circumstances attending the death of a little girl, aged three and a half years, who was taken ill shortly after eating some tinned beef for dinner. No other member of the family felt any ill effects after partaking of the beef and the coroner elicited that the deceased had eaten some painted sweets. Mr. W. W. Farnfield, resident medical officer of St. Mary's Hospital, Plaistow, said the cause of death was ptomaine poisoning, the result most probably of eating some unwholesome articles of diet, it being his opinion that the tinned beef was the cause. The jury returned a verdict of "Death from misadventure," and the question of the composition of the sweets appears not to have been gone into.

PLAGUE IN MALEGAON.

ONE of the most interesting pictures of work in a plague-stricken community appears in a place which at first sight would seem most unlikely for this kind of literature—namely, the pages of a public school magazine—*The Wykehamist* for Dec. 20th. "Year by year," says Kipling, "England sends out fresh drafts for the first fighting line which is officially called the Indian Civil Service. These die or kill themselves by overwork, or are worried to death or broken in health and hope, in order that the land may be protected from death and sickness, famine and war, and may eventually become capable of standing alone. It will never stand alone, but the idea is a pretty one and men are willing to die for it." The article referred to is written by one of this fighting line in question, an old Wykehamist and is a plain unvarnished record of hard work. The population of Malegaon is mainly composed of Mussulman weavers who wander over the country-side selling their work and it was by the agency of one of their customers from Bombay who eluded the cordon of guards that plague was introduced. The old Wykehamist set to work with the help of one native doctor who, we are sorry to say, was a venal person. A few days after the outbreak he appeared in a new suit of shiny black broadcloth which was considered suspicious. Suspicion soon crystallised into certainty when he was caught letting off the family of a rich man from going to hospital although there was a case of plague. In a week the native doctor was dead. There was no hospital so they had to convert a rest-house situated in the Mussulman cemetery into one, a place which, as the old Wykehamist says with grim humour, was "very handy, for the cases usually die in under five days." Eventually he got an English surgeon to help him who had a rather bad time for the first few weeks, for he was imbued with modern ideas as to stethoscopes and thermometers which naturally appalled the intensely conservative Oriental mind. However, this wore off and when the epidemic was over he was *fêted* by the very people who had previously looted his house and this, too, after having been smitten by the plague himself. The old Wykehamist was obviously endued with the dogged British pluck which a public school education affords a man. "I dug up lots of bodies when concealed plague was suspected. Sometimes a body would be left unclaimed in a house and I had to shoulder it and bring it out myself. One day I built a very fine funeral pyre myself and roasted a gentleman. ....." Winchester may well be proud of her son: and the editor of *The Wykehamist* is to be congratulated upon his magazine for it is certainly superior to the usual run of school journals.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received: *Evesham Journal, Rugby Advertiser, Leicester Post, Wilts County Mirror, Hampshire Advertiser, Batley News, Dewsbury Reporter, Lowestoft Standard, Kenilworth Advertiser, Times of India, Pioneer Mail, Scotsman, Citizen, Weston Mercury, Keene's Bath Journal, Leeds Mercury, Builder, Liverpool Daily Post, Cheltenham Free Press, Newcastle Leader, Architect, Bury Guardian, Brecon County Times, Bristol Mercury, Essex Telegraph, Walsall Observer, Yorkshire Post, Local Government Chronicle, Derby Times, Todmorden News, Pullen's Kent Argus, Eastern Morning News, Orsett Observer, Wigan Examiner, Kentish Gazette, South Wales Guardian, Lynn News, Guernsey Star, Hemel Hempstead Gazette, Midland Counties Express, Retford Times, Birmingham Post, Kidderminster Sun, Brighton Gazette, Sanitary Record, Meath Herald, City Press, Shipley Times, Reading Mercury, Hertfordshire Mercury, Australian Medical Gazette, Local Government Journal, Portadown News, Southampton Observer, Alfreton and Belper Journal, Surrey Advertiser, Surrey Comet, Lloyd's Weekly Newspaper, Devon County Standard, &c., &c.*

Communications, Letters, &c., have been received from—

A.—Dr. J. Althaus, Lond.; Messrs. Arnold and Son, Lond.; Ancoats Hospital, Manchester, Secretary of; Mons. J. Astier, Paris; Messrs. Allen and Hanburys, Lond.; Apollinaris Co., Lond.

B.—Mr. L. A. Bidwell, Lond.; Mr. W. Bernard, Londonderry; Dr. Bond, Gloucester; Messrs. F. L. Borthwick and Co., Lond.; Birmingham and Midland Ear and Throat Hospital, Secretary of; *Birmingham Daily Post*; Mr. A. Bovell, Lond.; Messrs. Barker Bros., Calcutta; Mr. L. Browne, Lond.; Birmingham City Asylum, Secretary of; Messrs. Burroughs, Wellcome, and Co., Lond.; Messrs. W. H. Bailey and Son, Lond.; Dr. Braine-Hartnell, Cheltenham.

C.—Dr. A. E. Cooper, Lond.; Mr. T. S. Cousens, Lond.; Messrs. J. Crosfield and Sons, Warrington; Mr. H. A. Collins, Saxmundham; Messrs. J. and A. Churchill, Lond.; Messrs. Cassell and Co., Lond.; Messrs. Cooper and Co., Lond.; Mr. J. W. Clarke, Manchester; Messrs. A. H. Cox and Co., Brighton.

D.—Mons. E. Ducretet, Paris; Dr. Dale, Truro.

E.—Captain W. M. Earle, Calcutta; *English Illustrated Magazine*, Lond.; East London Hospital for Children and Dispensary for Women, Secretary of; Evelina Hospital, Lond., Secretary of; Mr. W. Escombe, Bournemouth; Mr. G. Ellis, Rochdale; Mr. A. Elliott, Edinburgh.

F.—Dr. G. Flux, Lond.; Mr. W. Furner, Brighton; Messrs. F. Festersen and Co., Bâle; F. M. P., Portsmouth.

G.—Mr. J. Gay, Lond.; German Hospital, Lond., Superintendent of; General Hospital, Nottingham, Secretary of; Great Yarmouth Hospital, Secretary of.; Dr. M. Gordon, Lond.

H.—Mr. C. H. Huish, Lond.; Mr. P. H. Harmer, Hadlow Down; Hospital for Sick Children, Lond., Secretary of; Dr. G. Herschell, Lond.; Mr. J. Heywood, Manchester; Mr. T. J. Hughes, Pontypridd; Dr. T. W. Hime, Bradford; Dr. Holman, Lond.

I.—Institut Verneuil, Paris.

J.—Dr. John Johnston, Bolton; Messrs. W. and A. K. Johnston, Edinburgh; J. W. G.; Dr. Prosser James, Lond.; Dr. Thoresby Jones, Lond.

K.—Dr. H. Kenwood, Lond.; Dr. J. L. Kerr, Biddenden; Herr S. Karger, Berlin; Dr. J. M. M. Kerr, Lond.

L.—Messrs. Lee and Nightingale, Liverpool; L. F. P.; London Hospital, Secretary of; Mr. R. Lake, Lond.; London Society for Promoting Christianity amongst the Jews, Secretary of.

M.—Mr. A. Macbean, Kirkcudbright; Messrs. McKenna and Co., Lond.; Mr. B. E. McKnight, Dawson Springs, U.S.A.; Messrs. J. MacLehose and Sons, Glasgow; Messrs. Macmillan and Co., Lond.; Dr. Maclagan, Lond.; Mr. W. S. Mackenzie, Normanton; Medical Graduates' College, &c., Lond., Hon. Secretary of.

N.—North-Eastern Hospital for Children, Lond., Secretary of; Norwich Medico-Chirurgical Society, Secretary of; Navy, Director-General of the Medical Department of.

P.—Dr. R. W. Phillip, Edinburgh; Paddington-green Children's Hospital, Lond., Secretary of; Messrs. H. Potha and Co., Lond.; Dr. Pittock, Margate; Messrs. Parke, Davis, and Co., Lond.

R.—Messrs. Robertson and Scott, Edinburgh; Messrs. Ridges and Son, Wolverhampton; Royal Lancaster Infirmary, Hon. Secretary of; Royal Hospital for Children and Women, Lond., Secretary of; Royal Isle of Wight Infirmary, Ryde, Secretary of; Professor Rutherford, Edinburgh; Dr. J. Ramsay, York; Dr. H. D. Rolleston, Lond.; Messrs. A. Reid and Co., Newcastle-on-Tyne.

S.—Mr. J. Sampson, York; Mr. W. P. Stocks, Salford; Dr. R. P. Smith, Lond.; St. George's Hospital, Lond., Secretary of; Messrs. Street and Co., Lond.; Messrs. Street Bros., Lond.; Mr. G. Scudamore, Lond.; Society of Apothecaries, Lond., Secretary of; Samaritan Free Hospital for Women and Children, Lond., Secretary of; St. Thomas's Hospital, Lond., Secretary of; Dr. H. B. Shaw, Lond.; St. Andrew's Hospital, Northampton; Somerset and Bath Lunatic Asylum, Cotford, Secretary of; Dr. E. St. B. Sladen, Cambridge; Saarbach's News Exchange, Mayence,

T.—Mr. Andrew W. Tuer, Lond.; Mr. M. Todani, Hong Kong; Temperance Male and Female Nurses' Coöperation, Lond.; Dr. R. S. Thomas, Exmouth; Toxin.

U.—University College Hospital, Lond., Secretary of.

V.—Viator.

W.—Dr. A. S. Wilson, St. Leonards-on-Sea; Dr. W. A. Wills, Lond.; Sir Samuel Wilks, Lond.; Messrs. Willing, Lond.; Mr. H. W. White, Bradford; W. L. N.; Mr. R. G. Williams, Wrexham; Wigan Infirmary, Secretary of; Mr. S. Wand, Leicester; Messrs. J. Wright and Co., Bristol.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. R. R. Anderson, Fern Hill; Mr. G. C. B. Atkinson, Long Clawson; A. J. H.

B.—Mr. E. H. Buckell, Chichester; Dr. D. H. Baria, Dhrangadhra, India; B. L. S.; B. W. S.; Mr. W. B. Butler, Flaxton; Messrs. J. H. Bower and Co., Lond.; Mr. W. H. Bunting, Edinburgh; Dr. J. R. Bradford, Lond.; Messrs. Battle and Co., Paris.

C.—Mr. H. Cripps, Lond.; Messrs. Crossley, Moir, and Co., Lond.; C. D. F. B.; Dr. L. Cane, Peterborough.

D.—Mr. H. J. Davis, Brighton; Derby County Asylum, Clerk of; Miss M. Deane, Parkstone.

E.—Mr. F. Elmes, Cork; E. C. T.; Mr. Edwards, Lond.

F.—Mr. A. W. Fairles, Lond.; F. F. W.

G.—Mr. E. O. Gordon, Lond.; G. K. P.

H.—Messrs. W. Hill and Co., Lond.; H., Aldershot.

J.—Mrs. C. Jones, Epsom; J. L.; J. J. M.; J. Mc. C.; J. T.; J. M. C. McC.; J. L. S. V.

K.—Dr. C. S. Kilner, Bury St. Edmunds; Dr. J. A. C. Kynoch, Dundee.

L.—Dr. J. S. Lyttle, Pontypridd; Mr. A. Drumqueen; Leeds General Infirmary, Manager of; Mr. M. A. de Lacerda, Aldeia, Portugal.

M.—Mr. J. S. J. Murphy, Grangetown; *Medical Magazine*, Lond.; Mr. J. Macmurtrie, Glasgow; Mr. T. K. Mulcahy, Limerick; Medicus, Lond.; Messrs. Z. P. Maruya and Co., Tokio; Herr H. Müller, Vienna; Mr. G. T. May, Tunstall; M.D., London; M. A.; Messrs. F. G. Moore and Co., Lond.; Dr. M.

O.—Dr. C. Ormerod, Liphook.

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